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Parking leaders talk about the future of technology and what it will mean for the industry.

THE CRYSTAL BALL

By Bill Smith, APR

The installation of the original parking meter in Oklahoma City in 1935 represented the first time a technology was introduced to improve parking management. But we can hardly call that the dawn of parking's Technology Age. After all, the parking meter served as the zenith of technological advancement for more than 50 years. It became a ubiquitous symbol of parking, and it was the most important tool for managing parking behavior and collecting parking revenues.

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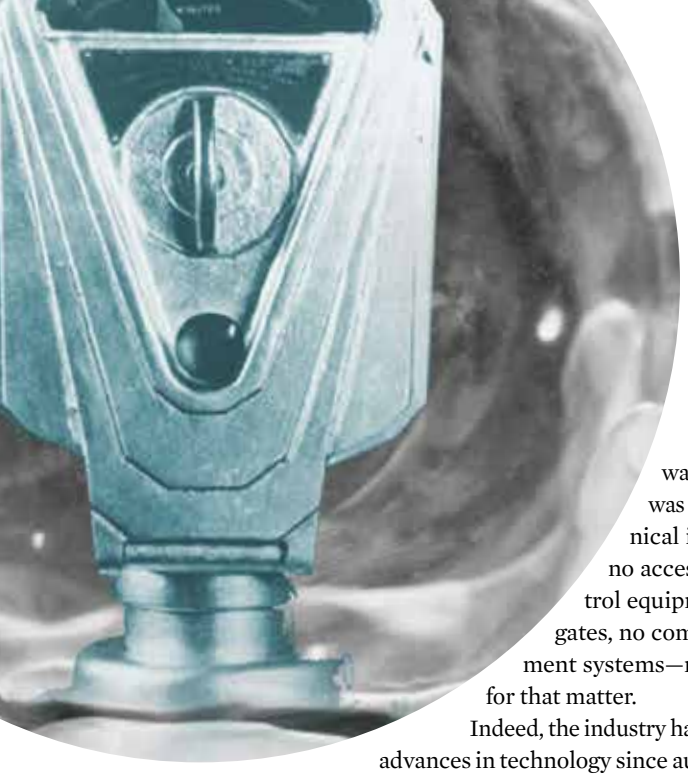

When the meter was introduced, parking was a decidedly non-technical industry. There was no access and revenue control equipment, no automated gates, no computerized management systems—no computers at all, for that matter.

Indeed, the industry has seen extraordinary advances in technology since automated access and revenue control and pay-on-foot technologies were first introduced in the early '90s. These technologies revolutionized parking and set the stage for the development of a wave of impressive new technologies in recent years, including credit card payment systems, parking guidance systems and single-space sensors, mobile parking payment and other driver-friendly apps, and cloud-based parking management suites.

Revolutionary Change

"There have been many important advances to parking technology, but in the last five years, the most dramatic change has been the deployment of credit-accepting meters," says David Cummins, senior vice president of parking solutions for Xerox. "They are a huge convenience for customers, and they've also boosted revenues for parking owners and improved their overall systems. This has been the most seismic of the technological improvements."

In addition to the obvious customer-service advantages of credit card payment systems, these technologies also dramatically reduce the risk of lost revenue through employee error and theft. Of course, credit card payment doesn't come without some risk. There have been a number of well-publicized credit card data breaches in recent months, which led to the release of the Payment Card Industry Data Security Standard (PCI DSS), which places a considerable burden on parking operators accepting credit card payments to secure their environment, infrastructure, policies, and procedures for processing and storing cardholder data.

"The next significant development in credit card processing will be the introduction of Europay, MasterCard, and Visa (EMV) Integrated Circuit Card Specifications in 2015," says Walker Parking Consultants' James Maglothin. "The rollout of EMV will bring a liability shift, making entities that accept credit card payments liable for fraudulent transactions when they don't comply with EMV standards."

Another game-changing technological advance has been the introduction of mobile pay applications duringthe past few years. According to Laurens Eckelboom, executive vice president for business development, ParkMobile International, no technology has had a greater effect on the parking industry.

"Mobility trends and developments have been pivotal for the parking industry in terms of being able to find parking and pay for it," Eckelboom says. "Mobile payment has been a game-changer in terms of user experience and functionality by changing the way we pay and the way we receive and send information."

According to Eckelboom, mobile payment first began to gain a foothold in Europe around 2000, but didn't really catch on in the U.S. until the first smartphones were introduced in 2008. Mobility technologies will continue to play a leading role in parking as new apps continue to be introduced, map functionality and GPS technologies continue to improve, and data networks continue to be enhanced. As our phones keep getting faster and smarter, they become increasingly useful as parking tools.

Mobile technologies are so important today because smartphones are omnipresent, according to Tim Flanagan, principal of Sentry Control Systems.

"Mobile phones aren't just for paying for parking," Flanagan says. "Parkers can use their phones to find their cars when they've forgotten where they parked, connect to loyalty programs, gain access to a parking facility, and find open parking spaces. The opportunities are only limited by the imaginations of app developers.

"Mobile technologies are also allowing operators to manage their facilities more efficiently and parking equipment providers to offer better services," Flanagan continues. "For instance, operators can use their tablets to gain real-time information about occupancy rates and user behaviors. And equipment providers can use the same technologies to monitor the performance of the equipment they sell and service and manage their parts inventories. Diagnostics and repairs that in the past might have taken days or weeks can be handled today in a matter of minutes or hours."

Looking to the Future

As exciting as parking's Technology Age has been so far, the future holds much more in store. We appear to be on the front-edge of a wave of technological innovation

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"The future of parking revolves around the connected vehicle," Cummins says. "In a few years, all of our cars will have vehicle infrastructure communications and will be connected to the grid. Our cars will be able to communicate with traffic technology and recommend which routes to take to avoid congestion and reach our destinations more quickly. They will also take us right to available parking spaces and automatically pay for the exact amount of time we need to park.

"Connected vehicles will offer much more convenience for drivers," Cummins continues. "They will also offer major benefits to municipalities and private parking owners because they promise perfect compliance with parking regulations. Theoretically, parking violations will become a thing of the past, and cities won't suffer from enforcement gaps."

According to Cummins, the connected vehicle is far from a pipe dream. He points out that the technology will be available in less than two years but that implementation will likely take more than a decade because it will require the installation of significant infrastructure and privacy concerns will need to addressed.

Eckelboom predicts an even more automated driving experience.

"You as a driver will be able to tailor your personal preferences to your journey," he says. "Your car will take you to the closest parking space to your destination, and then park itself. When you are ready to leave, you'll be able to ping your car and it will come and get you. Google and other companies are even working on self-driving vehicles that will drive themselves on roadways and highways, which would maximize flows and reduce accidents.

"We will also soon see wearables that will let us instantly communicate with our vehicles, public transportation, and parking infrastructure," he says. "Parkers in Europe are already using smartwatches to begin and pay for parking sessions."

Of course, tomorrow's technological advancements won't revolve solely around vehicles. In fact, experts think that the next five years will see the introduction of important new cloud-based systems and space-centered technologies.

"Space-centric technologies like single-space sensors will continue to grow in importance," Flanagan says. "Not only do sensors provide important benefits to parkers by guiding them directly to open spaces, but they also promote sustainability by eliminating the need for drivers to circle city blocks or floors within structures searching for a parking space. We are already seeing the introduction of solar-powered sensors, which provide additional green benefits and cost less to operate."

"Also, it won't be long before everything is web-based," he continues. "All revenue and control, parking guidance, and enforcement equipment will be Internet-enabled, recording data on safe and secure cloud systems. Cloud-based equipment will provide instant access to any type of data that operators or enforcement officials may need at any given moment."

Maglothin agrees that single-space guidance systems will continue to grow in prominence over the next few years, as will the continued transition to universally cashless transactions.

"We also anticipate a growth in pay-by-plate as the accuracy of license plate recognition technologies continues to improve," Maglothin says. "These are both part of the movement toward completely automated parking operations over the next decade."

Adopt and Adapt

The rate at which new parking technologies are developed and introduced is mind boggling. Ten years ago, few parking professionals could have foreseen the rise of mobile applications. Fewer still would have seriously entertained the idea of self-driving vehicles. However, today we take mobile technologies for granted and autonomous cars are just around the corner.

During the next decade, we will undoubtedly see many more technological advances that will make parking more convenient and easier to manage than ever before. The trick for parking owners and operators and their service and equipment providers will be to put themselves in a position to fully take advantage of new technologies.

"Change is happening so quickly that parking organizations run the risk of seeing their equipment become obsolete much sooner than they anticipated," Flanagan says. "As parking organizations obtain new equipment, they need to make sure that it is future-proof, and can be adapted to add new features or integrate with complementary technologies. This is the only way to protect an investment in technology and make sure that it will continue to operate at its best for years to come." P

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