5 Trends Driving the Future of Parking

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Introduction

Technology is the parking industry’s driving force—and as available technology continues to advance and evolve, so do the people that use it.

All of these trends have already started – and the impact will be felt in the years and decades to come.

In this eBook, we’ll cover 5 trends that are sure to have a big effect on the future of parking:

- Self-driving Cars
- The Internet of Things
- Smart Cities
- Millennials
- Data Analytics
Self-driving Cars

By now, of course, you’ve heard about these magical cars that drive themselves. Google has the biggest name in the game—having logged two million miles of driving. But there are many players in this space: Audi, GM, Tesla, and a dozen others. One of the Google cars – the one shaped like an egg – doesn’t even have a steering wheel!

Self-driving cars have the potential to take the hassle out of traffic, letting people take a rest or watch a video while in transit. But improved safety is a prime selling point for self-driving cars, too. One University of Michigan expert predicts crash rates will drop by 90% - an impact that will be felt by the insurance companies.

Self-driving car technology appears to be ready to expand into the marketplace, but regulations continue to block its progress. Many questions about liability and insurance in case of an accident with a self-driving car still remain. So far in North America only one state (California) and one province (Ontario) have approved testing of self-driving cars on public streets. So while the technology may be ready, the governing regulations are still a few years away.

There is no question that self-driving cars will be popular – every driver would prefer to use his or her in-car time more effectively. But how will this affect the parking industry? If self-driving cars are readily available then the question might be: could the car drop me off at my destination and then go park somewhere else, then come back later to pick me up? Dr. Kara Kockelman from the University of Toronto predicts that autonomous cars could reduce parking demand by 90%.

Additionally, with self-driving and self-parking cars, your parking garage becomes a little different – it doesn’t need as much lighting or ventilation, and if there’s no driver or passengers then cars can park within inches of each other, so you get more parking spaces per facility.

Finally, paying for parking could be completely different. If the self-parking car doesn’t have a driver anywhere nearby, somehow it needs to be able to pay for parking by itself. The car will need to find a place where it can park and pay without a human involved.
The Internet of Things

The Internet of Things, abbreviated as IoT, is a computing concept that describes a future where everyday physical objects will be connected to the Internet and will be able to identify themselves to other devices.

IoT is significant because an object that can represent itself digitally becomes something greater than when that object existed off the grid. No longer does the object relate just to you, but now it is connected to objects around it.

This is much, much more than having your alarm clock start your coffee maker. When many objects act in unison, they are referred to as having “ambient intelligence”. They’re not truly intelligent, but they act in a way as to make decisions that appear “smart”.

Technology research firm Gartner says 26 billion devices will be online by 2020; ABI Research puts that number at 30 billion; Cisco estimates about 50 billion. But whether it’s 26 billion or 50 billion, that’s a lot of connected devices—so does it really matter who is right?

Some people compare IoT to the origins of the microchip. Over time we saw mechanical devices replaced with digital ones. Indeed, the single-space parking meter was mechanical for 60 years before becoming an electronic device. With IoT it’s suggested that everything mechanical OR digital could become Internet-connected.

Devices like the Nest thermostat or your personal Fitbit are part of consumer IoT, but what’s the parking angle?

The Internet of Things has already started in parking, and most parking operations are already a part of it. Vendors in the parking industry now provide Internet connected meters, gates, and handhelds; vendors share data with each other via APIs; and parking operators can even use that data to direct enforcement.

Another suggestion is that IoT and the corresponding intelligence will result in devices that warn you before they will break. We already save our customers time by telling them when to service a machine, or when to empty the meter. The next step will be to sense when a device is going to fail, and send out technicians proactively.
For the first time in history more people live in cities than live in rural areas. In the United States the urban population increased 14 percent between 2000 and 2013.

A city is responsible for serving its citizens with things like water, electricity, sanitation, and sewers. It provides urban mobility and public transport. These are big, difficult things to manage. Through a combination of technology and governance cities are now making “smarter” decisions using information and communication to better serve citizens, and are becoming more efficient.

There is no one single thing a city does to become “smart.” Instead, it’s a collection of services and ideas implemented to improve the lives of citizens and become more efficient.

Smart cities, for example, might look at their garbage trucks and optimize routes they take in order to reduce congestion, or plan sewer operations using rainfall forecasts.

The part that we’re most interested in, of course, is parking. Cities are beginning to understand that parking is an extension of their overall transportation infrastructure. Proper data collection is starting to illuminate the relationship between parking and transportation in a city, and technology is providing solutions.

Examples:
- Hong Kong provides its citizens a nearly universal smart card for services like public transit, library access, building access, shopping, and even parking.
- Copenhagen is trending toward carbon-neutrality with 40% of their citizens commuting by bicycle.
- Berlin is testing the infrastructure to use electric vehicles to contribute power back into the grid during peak usage.
- London is recognized for having a tax to reduce traffic congestion passing through the inner city.

Parking vendors are also getting in on the action. Solutions in the marketplace now include:
- Online payments and appeals services for citizens
- Real-time occupancy data available via apps and signage
- Integration with toll-tags and pay-by-cell solutions for customer convenience
- Optimization facility use via car counting

These are all “smart city” functions. The next generation of parking solutions might take these smart city functions even further, with potential services including:
- Dynamic pricing to incentivize parkers toward specific locations—parking meters could transmit the current rates to the vehicle as it’s coming down the street.
- Parking garage equipment informing nearby stoplights how much additional traffic is being generated after a big event, so the stoplights could adjust accordingly.
Younger people these days are happier with an urban life. Which is why Millennials are responsible for the recent growth of cities more than any other group.

Just as the Baby Boomers were a defining generation, shaping economics, law and society—the Millennials have taken over to represent the largest demographic in North America.

If you were born between 1982 and 2000 then you’re a millennial. There are 83 million Millennials in the US, versus 75 million Boomers. And the generation in between, Generation X, has only about 50 million members in its cohort.

Millennials now have the ability and the purchasing power to shape their world, and they’re starting to do so.

Americans under 30 are 7.2 times more likely to take public transit than Americans over 60. It’s not that millennials can’t afford cars—they simply don’t want them as much. A study at the University of Michigan’s Transportation Research Institute shows that young people are also less likely to have a driver’s license. The percentage of persons with a driver’s license for millennials in the US has dropped 18% in the last 30 years.

After all, who wants to worry about insurance, oil changes or parking? If you’re living in a city with a robust multi-modal transit system then you won’t own a car – you’ll rent one by the hour, or take an Uber, or share ownership of a car.

Millennials are more technologically savvy than the generations who have preceded them, and this is reflected both in their consumer behaviors and also their work behaviors. They are an enigma, in that they are super-connected to their friends, and yet prefer self-service kiosks to interacting with humans.

What’s the impact to parking? Obviously there’s reduced demand – fewer cars means fewer parking spaces are needed. But furthermore, the tech-savvy millennials also have a higher demand for self-service. They don’t want to deal with a human, they want to work with an app to plan their trip, pay their fares, and save them time. Our future parking solutions need to facilitate these types of transactions, from any device, for any customer.
Our final trend is the thread that you’ve seen woven though each of
the previous trends: Data Analytics. The self-driving car is dependent
on data, the Internet of Things generates data, the Smart City leverages
data, and the Millennial is comfortable using data.

We generate so much more data than is possible for a human to
comprehend, and that’s why data analytics tools are becoming so
important. Parking vendors like T2 are now generating data from our
systems and devices, while providing data analytics for customers.

When North American cities started to offer 311 telephone services for
citizens to report potholes and graffiti, they opened up a floodgate of
data collection. We even see some cities with parking data collected
this way: citizens are reporting parking infractions and abuse of
disabled permits.

As Baby Boomer parking managers retire, the generation to fill
their shoes will likely be millennials who have high expectations of
technology, will be asking for more insight and consulting from
companies like T2. The way a Millennial purchases parking solutions
will be different than how a Boomer did.

In fact, parking offices are already hiring full-time data analysts to help
cope with the data they do have, and bring together data from other
departments.

The parking operation of the future will see data as an interconnected
stream of measurements, not individual ones. They will understand
their ability to impact parking, or transit, or carbon footprint simply by
making small adjustments to their systems – for instance by changing

This is just one example of many possibilities… if we can be creative
enough.