FoxNet. IoT and IT Solutions

How to optimize the smart parking value chain and increase revenue.

September 2018

William Dupley,
Digital Strategist
FoxNet Inc.

CPA ACS Toronto 2018

Smart parking capabilities.

Agenda

01. Why smart parking?
02. Transportation trends.
03. Smart parking value chain.
04. Parking management.
05. Parking revenue.
06. Parking optimization.
07. Parking integration.
08. Where to start?

We're a creative & experienced team of architects and advanced parking system designers.

—

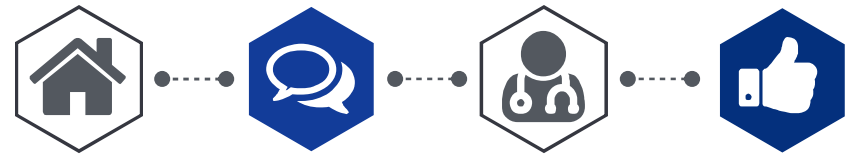
FoxNet's original premise was simple: save organizations from making costly IT mistakes.

- Over 15 Years of experience solving IT problems
- A passion for customer service and personalized engagements
- Agile; with the ability to adapt to technical changes as they come

about us.

Waterloo based
service provider since 2002

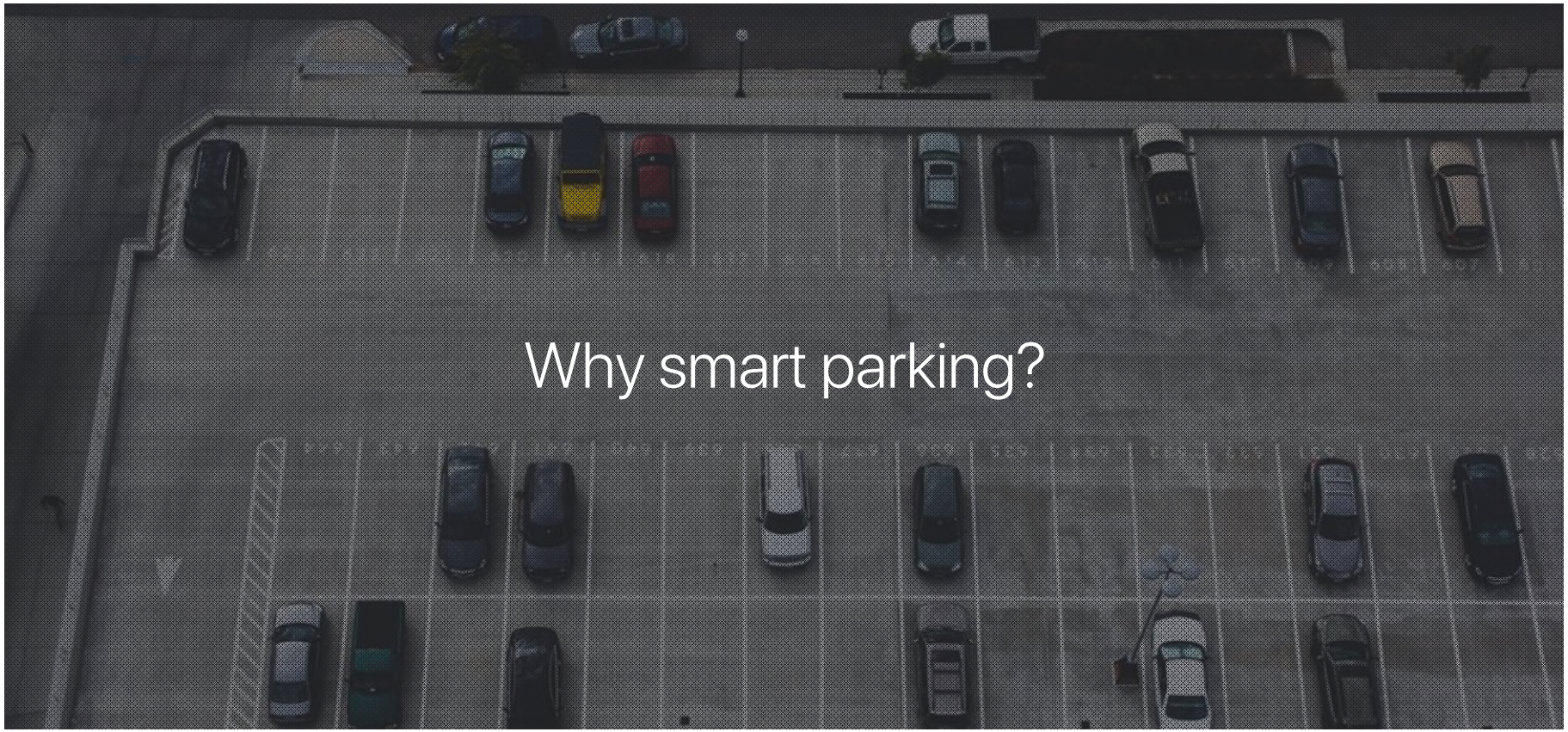
—



Community Customer Service Trust Integrity

Waterloo,
Ontario

our roots.


Why smart parking?

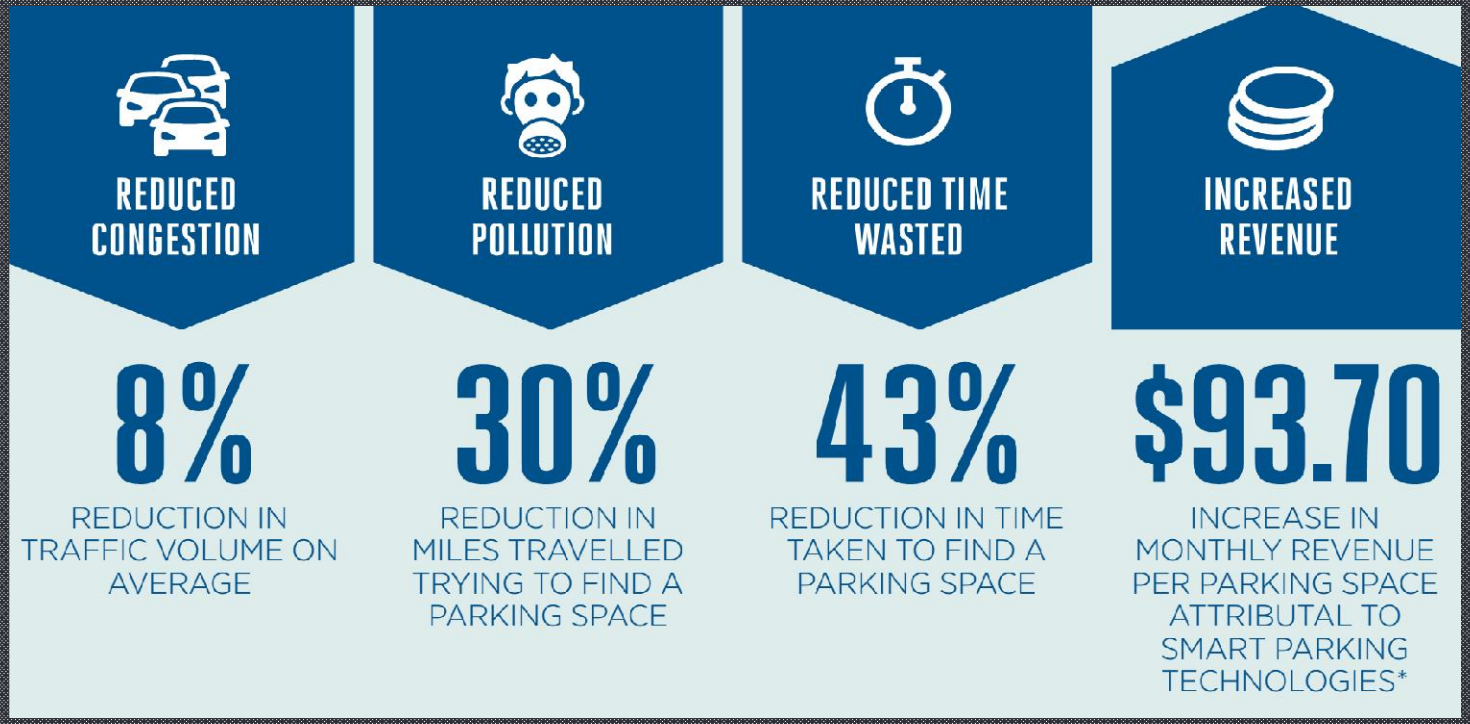
What do customers want from parking?

1. Reduced travel time
2. To spend less ($$)
3. Find spots with ease
4. Accessibility – Eliminate the need to stop and pay for parking
5. Access to electric car charging
6. Ability to handle different types of drivers,
    - (i.e. easy access for disabled drivers, delivery drivers, expectant mother)
7. Enable preferred parking spots or valet parking options

Smart parking capabilities.

- **Parking guidance and information system (PGIS):** Locating a parking spot
- **Transit-based information systems:** Transit schedules and traffic conditions
- **Smart payment systems:** Phones smart cards, credit cards, debit cards
- **Automated parking:** Automatically parked cars in allocated spaces
- **Parking reservation (eParking):** Reserve and pay for their parking in advance
- **Dynamic pricing:** Based on time, location, and customer demand

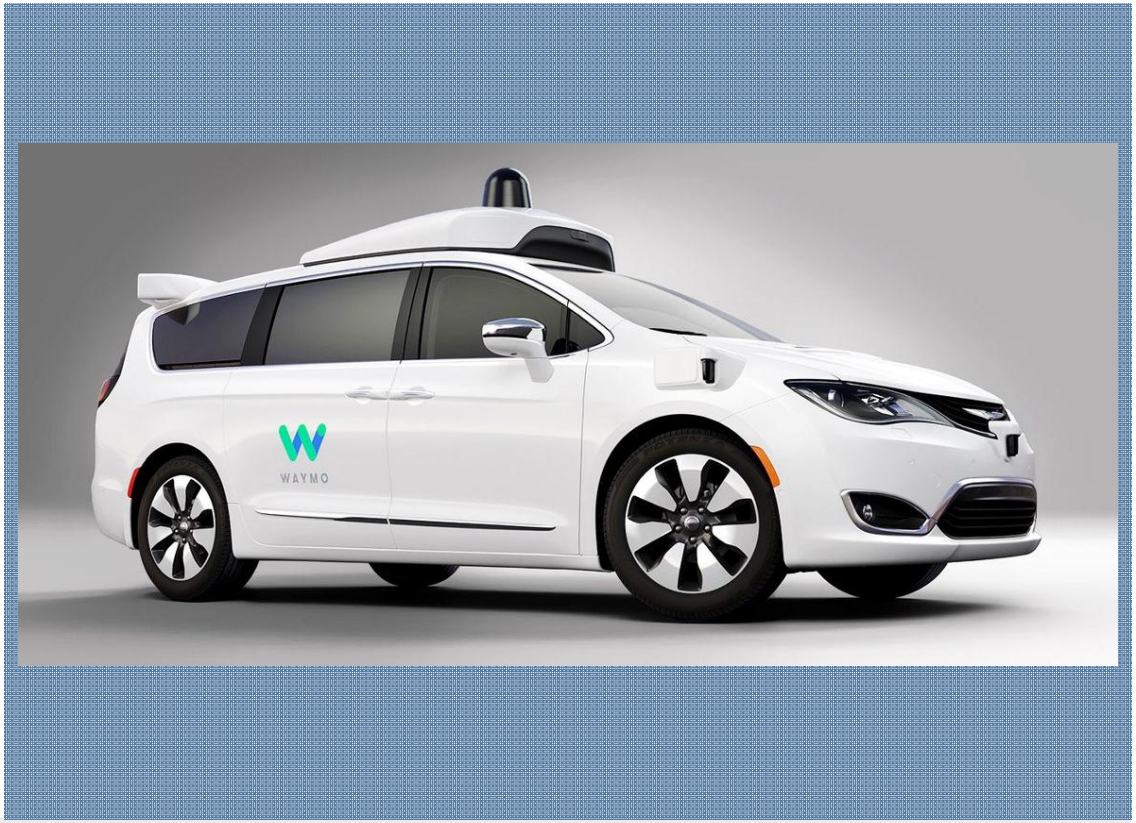
Benefits of smart parking.




Transportation trends.

Trends: Driverless Cars.

- In 2020, the parking industry will be severely disrupted by driverless cars
- AlphaBet's Waymo is already testing pricing and teaming up with public transit in the Phoenix area
- Waymo has ordered 62000 Chrysler Pacifica to support this program - delivery 2018



Trends: Driverless Cars.

- Waymo also announced a deal with Jaguar Land Rover to create self-driving Jaguar I-Pace electric SUVs

- The first cars will begin testing this year and be part of the Waymo fleet by 2020

Trends: Personal Drones.

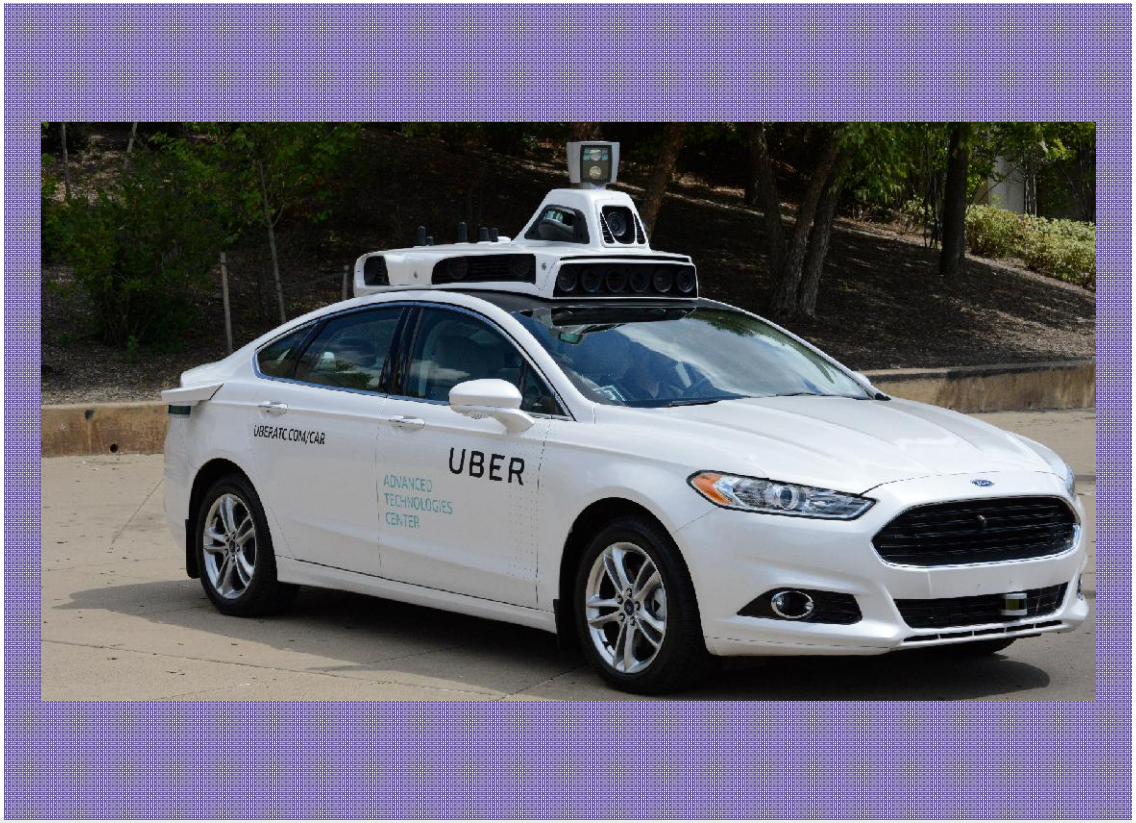
- Ehang has produced a "184" Personal Flying Vehicle (PFV). Able to deliver one human (up to 260 pounds) anywhere within a 10 mile/23-minute flight time reach

- Top speed of 62mph, and max flight height of 11,000 feet

Trends: Subscription Services (Uber)

- **Uber** is about expanding beyond its ride-sharing app to own and operate its own fleet of **driverless vehicles**

- Michigan has found that subscription car services could result in a 51% reduction in car ownership



Driverless cars impact on parking.

- Driverless cars will significantly impact North America by 2030
- 2018 A North American family owns 2.1 cars, by 2030 it will drop to 1.2 cars
- This will have at least a 43 % drop in demand for parking spaces
- Subscriptions Uber services are estimated to have a an impact of about a 40% reduction in parking demand particularly in urban areas
- On the plus sides you can fit 4 self driving cars in 3 parking spots
- It is possible to increase revenue by 25% on the same parking lot assets

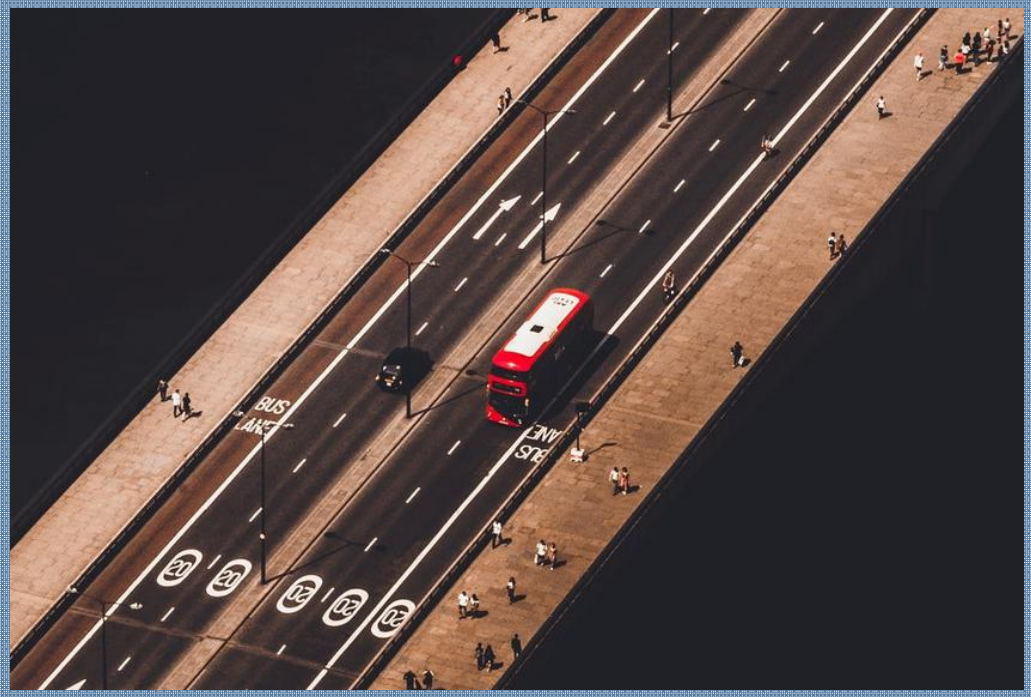
Trends: Millennial Lifestyle.

- Millennial's preferred to live within walking distance of their work and prefer to live in walkable mixed-use downtown areas where they can easily take transit and walk to work

- Some millennial's are not interested in getting their driver's license as a result of this change

Trends: Congestion Charges.

- London England
- Congestion Charge
- The Congestion Charge is an **£11.50** daily charge for driving a vehicle within the charging zone between 07:00 and 18:00, Monday to Friday




Smart parking value chain.

Smart parking value chain.

1. **Parking Management:** Ability to make strategic application, and use, of existing and planned parking spaces, both on-street and off-street, in a given area
2. **Parking Revenue:** Ticket for parking and enforcement of payment
3. **Parking Optimization:** Ability to ensure that data generated by smart parking services is not held in silos
   - Parking lots availability and occupancy is available to stakeholders
4. **Parking integration:** Ability to integrate data from all sources into data repository

Parking revenue opportunities.

FoxNet. IoT and IT Solutions

- Parking Purposes
    1. Work: 22.2%
    2. Shopping: 9.2%
    3. Business: 36.8%
    4. Recreation appointments & Private business: 31.8%
- We can just raise prices. The impact of price changes are felt by those who use their cars for work
- If you raise prices 133% - 99% of work commuters would find an alternative method of transit

Results in higher revenues.

- Daily Rate $2.54/hr.
- Short term rate $6.00/hr.

# of spots	Parking usage	Percentage of users	Duration of stay	Price Per hour	Occupancy	Revenue
645	Business	36.80%	8	$6.00	90.00%	$10,253.95
645	Shopping	9.20%	8	$6.00	90.00%	$2,563.49
645	Work	22.20%	11	$2.54	90.00%	$3,600.66
645	Other(recreation, Private business)	31.80%	8	$6.00	90.00%	$8,860.75
Total daily Revenue						$25,278.85
Increase price by 133 percent						
# of spots	Parking usage	Percentage of users	Duration of stay	Price Per hour	Occupancy	Revenue
645	Business	36.80%	8	$14.00	90.00%	$23,925.89
645	Shopping	9.20%	8	$14.00	80.00%	$5,316.86
645	Work	22.20%	11	$5.91	0.00%	$0.00
645	Other(recreation, Private business)	31.80%	8	$14.00	80.00%	$18,377.86
Total daily Revenue						$47,620.61

"Underpriced parking can have a large social cost, but overpriced parking can cause spaces to remain empty contributing to the loss of customers for nearby stores, loss of jobs to employees, and loss in tax revenues to governments"

SFPark San Francisco study


Parking management.

Parking management capabilities.

1. Identify available spaces
2. Secure revenue collection
3. Parking lot maintenance
   - (Identify snow, water, or debris)
4. Lot enforcement
   - (are long-term customers occupying short-term parking spots?)
5. Mobile payment support
6. Per minute parking charges
   - (versus flat rate charges)
7. Forecast parking demand
8. Optimize pricing strategies

Case Study: SFpark.

Goal:

- Eliminate underpriced parking and reduce the number of drivers cruising nine streets to find an open space
- SFpark maximize the efficiency of their garages
- Ensure at least two or more spots were always available on all blocks

Solution:

- Variable pricing techniques to set the prices of curb parking using smart parking technology
- With this technology, the city adjusted curb parking prices in response to the observed occupancy rates

Case Study: SFpark.

Results:

- Short-term parkers in garages increased by 11 percent or about 130,000 short-term parkers per year.
- 74% of responded stated that it was "somewhat or very easy to pay for parking"
- 43% reduction in the time it took for drivers to find a parking spot, resulting in drivers finding parking within 6.5 minutes
- 30% reduction in vehicle miles traveled and greenhouse gases from vehicles searching for parking
- 8% decrease in traffic volumes in areas with improved parking availability
- 22% reduction in double parking in pilot areas

Case Study: Gas Town Vancouver.

Opportunity/Issue

- Business customers only used parking spots during business hours
- Residential customers typically only occupy spots during evenings

Solution

- Change program and timeshared

Results:

- Freed up a floor which was converted to transient parking customers
    - Produced higher revenue