2020 Parking Technology & Innovation
Survey Results

December 2020

2020 PARKING TECHNOLOGY & INNOVATION SURVEY

Survey Overview

In fall 2020, City Tech and the National Parking Association conducted a first-of-its kind survey of parking industry executives to:

- Understand the role of technology as an industry driver and competitive differentiator

- Assess relative importance and familiarity with specific technologies and related business opportunities

- Identify barriers to technology and innovation

- Generate new insights and identify potential collaboration opportunities through NPA, City Tech, and related efforts

Survey Details:

- Timing: September 1, 2020 – October 2, 2020

- Format: 10 online questions, including multiple choice and free response

- Analysis: 45 responses, representing a cross-section of senior parking industry leaders; no responses were attributed to individual respondents or organizations

Source: 2020 Parking Technology & Innovation Survey – City Tech Collaborative & National Parking Association

EXECUTIVE SUMMARY: TOP FIVE TECH & INNOVATION FINDINGS

Parking Isn't the First Industry to Undergo Tech-Enabled Transformation...But it's Quickly Making Up for Lost Time

1. Tech is _Even More_ Important Than We Thought:

- 98% agree that tech is critical; 82% anticipate a major tech investment within the next 5 years
- 96% believe that companies that make the best use of tech will outperform their competition
- 91% indicate that COVID-19 has increased the need for technology and innovation

2. Companies Aren't Necessarily Up to the Challenge:

- Nearly 70% of respondents doubt whether most parking companies have the right technical and financial expertise to make sound, forward-looking technology investments
- Only 1 in 3 respondents believes strongly that his or her own company has the right partnerships in-place to navigate today's tech landscape

3. Compatibility, Capability, & CapEx Are Holding Us Back:

- Proven solutions and ROI are _NOT_ the top tech adoption barriers
- 3/4 of respondents rated incompatibility, lack of staff experience, and capex limitations as "significant" or "major" barriers

4. Ride the Waves of Emerging Tech:

- Respondents' rankings of 10 emerging technologies suggest two (or more) "waves" of parking innovation – familiar & relevant tech is quickly becoming table stakes for industry leaders, while up-and-coming solutions may require further testing and learning to determine business value

5. Don't Go It Alone:

- No company or organization can "win" technology by itself
- Smart, well-structured partnerships can help parking leaders stay informed, learn together, and invest in proven solutions to drive business performance

Tech & Innovation Survey Highlights (Keep Reading For More...)

"Technology is critical to the future of the parking industry"

98% Agree
(91% 'Agree Strongly')

"My company has the right public and private partnerships in-place to navigate today's parking technology landscape"

64% Agree
(but Only 33% 'Agree Strongly')

"Most parking companies have the right technical and financial expertise to make sound, forward-looking technology investments"

31% Agree
(_None_ 'Agree Strongly')

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ABOUT THE SURVEY – WHO RESPONDED?

The Survey Reflected Views of Senior Parking Industry Leaders, Representing Ops, Management, Ownership, and Technology

Respondents' Role / Seniority

What is your role within your company?
(multiple choice)

- Other 14%
- Manager 5%
- CEO or President 43%
- Director or SVP 22%
- CXO (direct report to CEO) 16%

Core Business

What is your company's core business?
(multiple choice; check all that apply)

Category	Percentage
Parking operations / management	39%
Consultant / advisor	39%
Technology product or service provider	37%
Technology integrator	26%
Parking asset ownership	18%
Other	11%
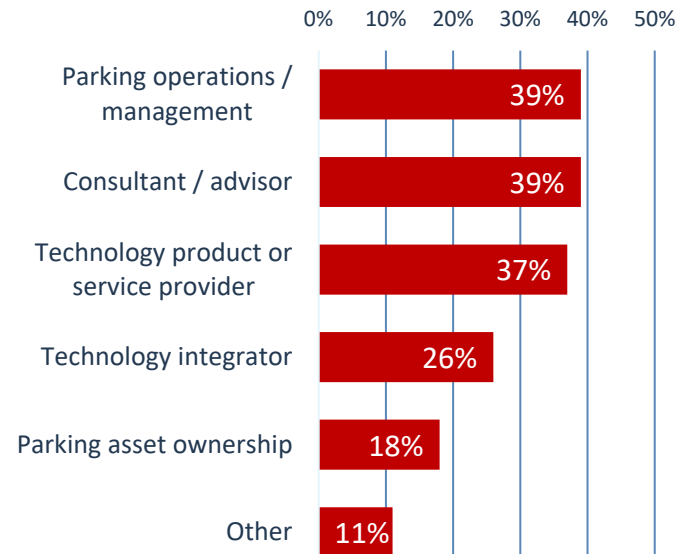
Note: Because respondents were invited to indicate more than one core business element, responses do not total 100%

Geographic Scope

What is your company's geographic scope?
(multiple choice)

- Multi-Market 5%
- Other 5%
- National 34%
- Regional 13%
- Single Market 16%
- International 27%

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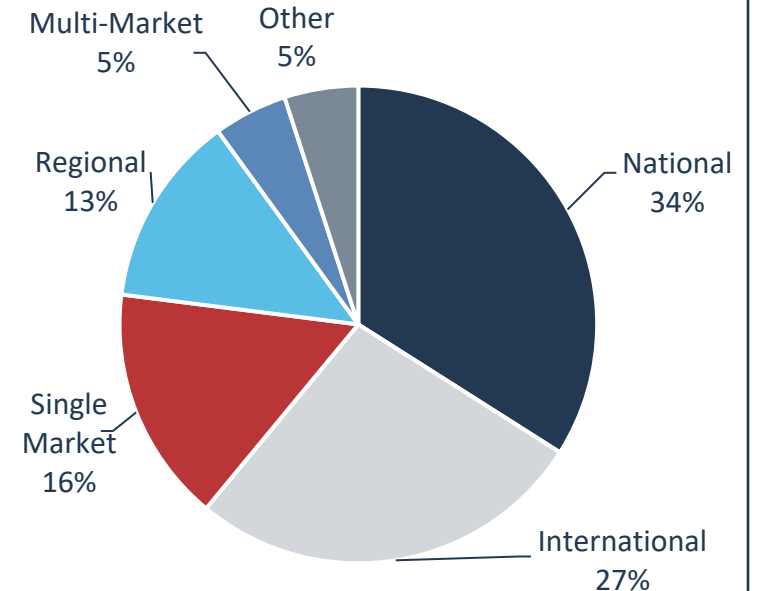
PARKING TECHNOLOGY TRENDS

Tech is Vital to the Industry's Future; Many Respondents Doubt Whether Companies Have Expertise and Partnerships to Make Good on It

Please indicate your agreement / disagreement with the following statements:

Legend: ■ Strongly Agree ■ Agree ■ Disagree ■ Strongly Disagree □ Don't Know

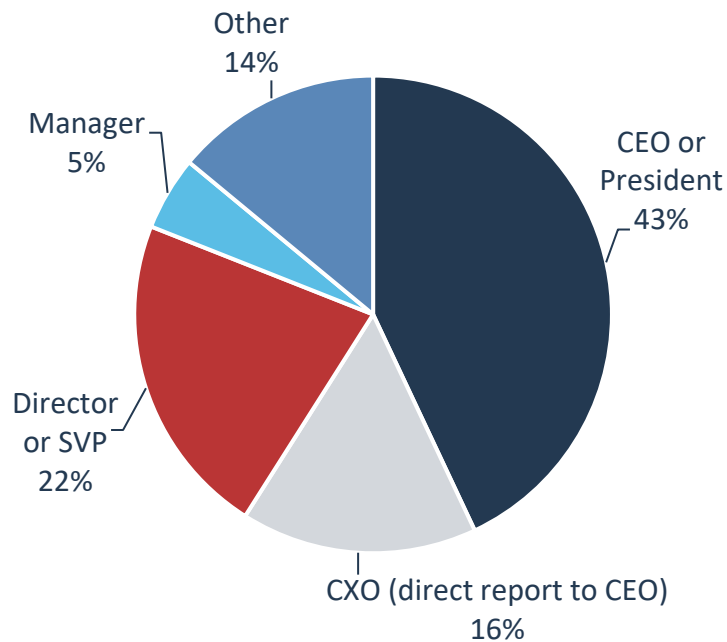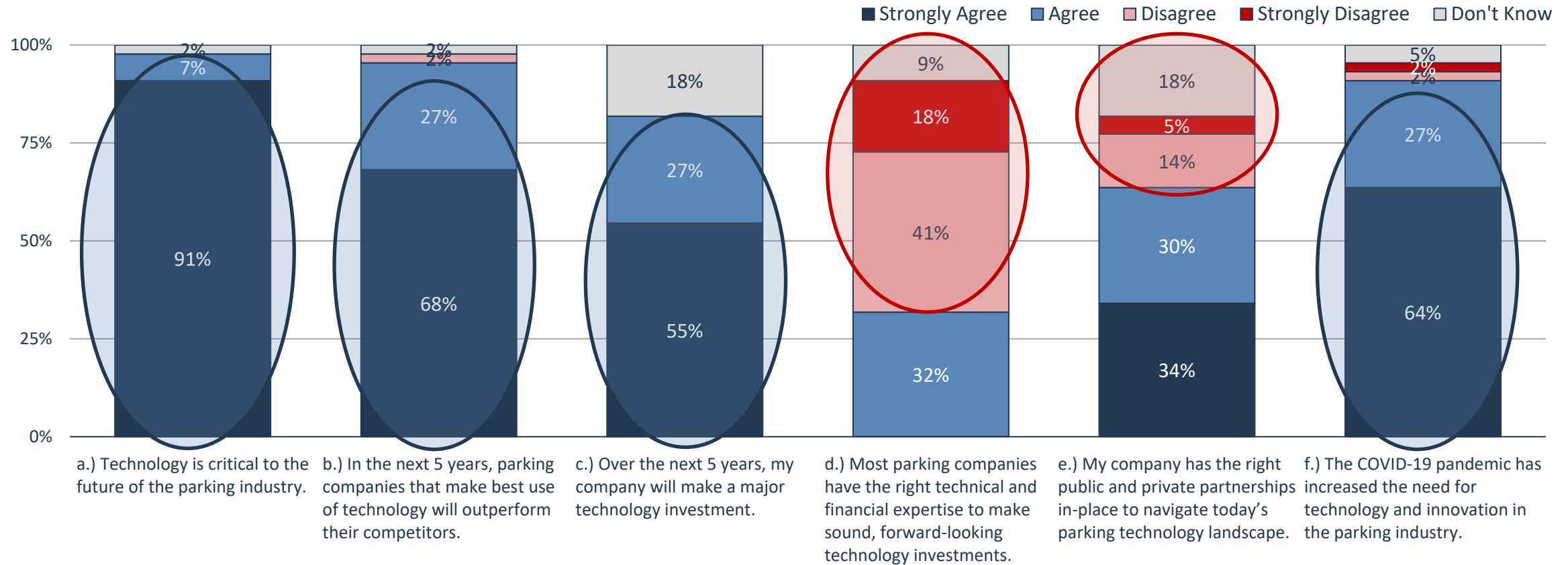| Statement	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
a.) Technology is critical to the future of the parking industry.	91%	7%			2%
b.) In the next 5 years, parking companies that make best use of technology will outperform their competitors.	68%	27%	2%		2%
c.) Over the next 5 years, my company will make a major technology investment.	55%	27%			18%
d.) Most parking companies have the right technical and financial expertise to make sound, forward-looking technology investments.	32%		41%	18%	9%
e.) My company has the right public and private partnerships in-place to navigate today's parking technology landscape.	34%	30%	14%	5%	18%
f.) The COVID-19 pandemic has increased the need for technology and innovation in the parking industry.	64%	27%	2%	2%	5%

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BARRIERS TO PARKING INDUSTRY TECH ADOPTION

Compatibility, Capability, and Capital Investment Surfaced as More Formidable Barriers to Tech Adoption Than Proven Results and ROI

Please rate each of the following general barriers to technology adoption in the parking industry:


Legend: ■ Major Barrier ■ Significant Barrier ■ Minor Barrier ■ Not a Barrier

Category	Major Barrier	Significant Barrier	Minor Barrier	Not a Barrier
a.) Status quo / historically not a tech-focused industry.	16%	51%	30%	3%
b.) Tech solutions are unproven / unclear what tech can do.	14%	38%	41%	8%
c.) Tech may be incompatible with existing systems or equipment.	34%	43%	20%	3%
d.) Lack of staff experience / technical expertise.	24%	49%	22%	5%
e.) Inability to calculate financial return on investment (ROI).	19%	32%	35%	14%
f.) Insufficient financial return on investment (ROI).	14%	36%	33%	17%
g.) Limited capital for initial investment (capex).	39%	36%	17%	8%
h.) Limited budget for ongoing operations & maintenance (opex).	17%	50%	25%	8%

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ASSESSING TECH-ENABLED INNOVATIONS

Respondent Rankings of Specific Innovations Suggest "Table Stakes" Tech, As Well As "Up-and-Coming" Opportunities to Explore Further

X-Axis: How RELEVANT is each of the following parking technologies to your business?
Y-Axis: What is your team's level of FAMILIARITY with each of the following technologies?
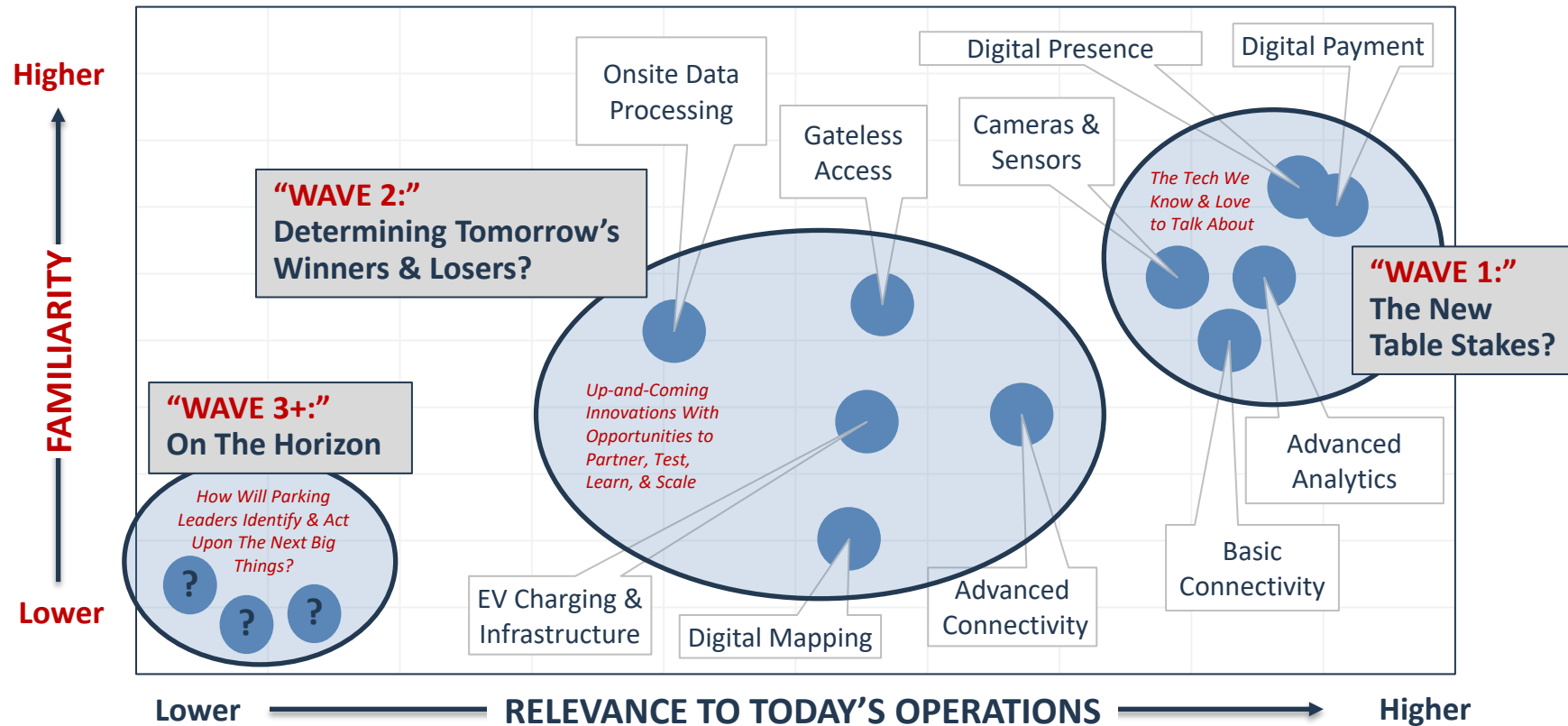
Evaluating 10 Parking Industry Technologies & Innovations:

1. Basic networking and connectivity (ex: LTE, 4G, Wi-Fi)
2. Advanced networking and connectivity (ex: 5G, fiber)
3. Digital mapping (ex: 3D, high-definition)
4. EV charging and electrical infrastructure (ex: chargers, wiring, energy storage)
5. Cameras and other sensors (ex: occupancy)
6. Advanced analytics (ex: AI, recognition, demand pricing)
7. Gateless entry / exit (ex: no arms or tickets)
8. Digital business presence (ex: web, mobile, online reservations)
9. Digital payment (ex: touchless, automated)
10. Onsite data processing (ex: servers, data centers, on-premise hosting)

Note: For each of 10 technologies and innovations, respondents scored relevance and familiarity on a 4-point scale.

Numerical averages are plotted on the chart to the left.

Source: 2020 Parking Technology & Innovation Survey – City Tech Collaborative & National Parking Association

ABOUT US

City Tech Collaborative & The National Parking Association

City Tech Collaborative (City Tech): City Tech is an urban solutions accelerator that tackles problems too big for any single sector or organization to solve alone. City Tech's work uses IoT sensing networks, advanced analytics, and urban design to create scalable, market ready solutions. Current initiatives address advanced mobility, healthy cities, connected infrastructure, and emerging growth opportunities. City Tech was born and raised in Chicago, and every city is a potential partner. Visit us at www.CityTech.org and follow us on Twitter and LinkedIn.

National Parking Association (NPA): The National Parking Association provides training, certification, and access to leading edge parking technology across the private and public sectors. Founded in 1951, NPA represents over 100,000 parking professionals in more than 2,500 commercial operations and public organizations. NPA is a 501(c)(6) nonprofit trade association, based in Washington, D.C. Visit us at www.WeAreParking.org or email Info@WeAreParking.org.

The Millennium Gateway Innovation Lab: The Millennium Gateway Innovation Lab is a groundbreaking partnership to shape the future of the parking industry and urban mobility. As a consortium of asset owners, parking and mobility operators, technology providers, policymakers, and other thought leaders, Lab participants work to integrate parking more fully into urban transportation systems, develop tech-enabled solutions for smart infrastructure management, and cultivate value-added services and space uses. The Lab is part of City Tech's Advanced Mobility Initiative.

Founding Millennium Gateway Innovation Lab members and strategic partners include Millennium Garages, SP+, Arrive, the National Parking Association, the International Parking & Mobility Institute, and the City of Chicago. Learn more at www.CityTech.org/Parking-Innovation.

THANK YOU!

FOR MORE INFORMATION, PLEASE EMAIL COLLABORATE@CITYTECH.ORG

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