Cityvision

All Hands on Tech

Cities confront the promise and perils of innovation

FROM THE PRESIDENT

To quote Bob Dylan, "The Times They Are A-Changin'." When we think of the fast-paced changes in technology, we can have a wide range of emotions about it. Some see the tremendous opportunities that technology will bring,

and others can be fearful of the costs, implementation timelines, and ongoing maintenance requirements.

We need to approach the adoption of new technology as we approach implementing other priorities for our cities. In order to evaluate the importance, we should be asking: What will the technology provide? How will services to our community be improved? Will it streamline operations? Will it make us more competitive in attracting new businesses or development? Will it increase savings? What will the effects on the community be—both if we do implement or embrace it and if we don't?

There is a delicate balancing act in ensuring that the improvements technology brings do not create other issues. An example that many cities have been facing and will be facing is the deployment of "small cells" by the wireless networks. Consumers will want or eventually demand 5G connectivity, and the density required cannot be provided with existing cell towers. Like other cities, Kennewick has worked on design standards and an application

process to find a balance between allowing for the technology and preserving the look and feel of community streets and neighborhoods. This has proved to be a big issue in areas of the country where small-cell deployments have already started to occur, with some residents becoming upset over the size and proximity of small cells to their homes. Cities are often caught among finding solutions for carriers, not wanting to be perceived as a barrier to technology improvements, and maintaining the aesthetic integrity of our communities.

Our partnerships and connections are more important than ever as we move forward in considering our options. We will all be taking some level of measured risk as we step into the future. Sharing what has worked, what didn't work, or what could have gone better in our technology endeavors will be crucial.

Sincerely,

Don Britain
Mayor, Kennewick

Cityvision

3/4.19

City of Sammamish Interim City Administrator Larry Patterson and Interim IT Director Steve Schommer
FIRM FOUNDATIONS, P. 14

Citybeat

Meter Remade

Bellingham finds a better parking space.

WHEN BELLINGHAM'S CITY COUNCIL in 2013 set goals and priorities for its municipal parking system, which was managed mostly by curbside coin-operated meters and a few digital-age pay stations, a primary goal was the adoption of modern technology. But instead of retiring its old-school meters and expanding its network of modern parking kiosks, Bellingham augmented its existing system with PayByPhone, a mobile parking app with millions of users in 40 US cities, including Bremerton, Kirkland, Olympia, and Seattle.

"Part of the reason we picked that particular app is that it's also used in the Seattle area as well as Vancouver [BC]," says Eric Johnson, Bellingham's assistant public works director for operations. "So, plenty of visitors going up and down the I-5 corridor from those areas or who frequent those areas will have that same app on their phones."

The chief appeal of the new system is consumer convenience. After downloading the mobile app on a smartphone and inputting personal and vehicle information (including license plate number and method of

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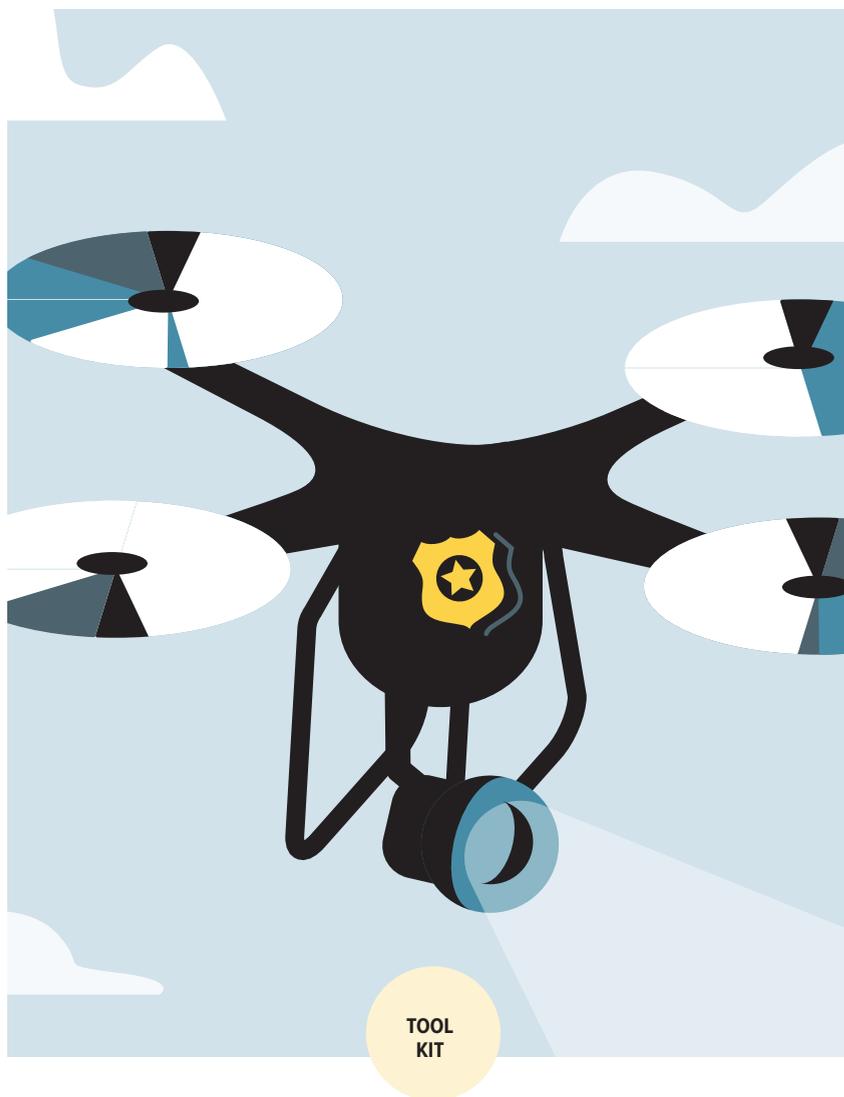
UAS in the USA

Tukwila uses current technology to put eyes in the sky.

BY TRACY HOWARD GARTON

LOOK! UP IN THE SKY! It's not a bird... it's not a plane... it's a Tukwila Police Department drone.

Officially known as "unmanned aircraft systems" (UAS), drones have been deployed by many municipal police departments in recent years, giving city law enforcement programs the ability to put a bird's-eye view on public safety incidents—from traffic accidents to crime scenes—at a fraction of the cost of deploying (and maintaining) a helicop-

ter. In 2016, the City of Tukwila's chief of police decided to test the technology, tapping then–Deputy Chief Bruce Linton, a veteran Washington Army National Guard aviator and commercially licensed pilot, to oversee the project. Getting it off the ground was no simple feat.

To address privacy concerns, Linton studied policies adopted by the International Association of Chiefs of Police, the ACLU, and the Department of Justice, then drafted guidelines governing Tuk-

wila's UAS program. To establish precedent for deploying the new technology, Linton pointed to widespread use of aircraft to track and ticket speeding vehicles, dashboard-mounted cameras in police cars, and body-mounted cameras on police officers. "It's not about what you use to gather the data, but about how you use the data," he says. Tukwila's council agreed and, in May 2017, greenlighted the city's UAS program.

Drawing on his career in military aviation, Linton coached eight officers through the comprehensive process of obtaining FAA certification as UAS

"IT'S NOT ABOUT WHAT YOU USE TO GATHER THE DATA, BUT ABOUT HOW YOU USE THE DATA."

pilots. Still, having a license in-hand "doesn't mean a person grabs a machine and goes for a joyride," observes Linton, noting that the department spent months honing plans and procedures, checklists, mission briefings, risk analyses, and a preflight approval process to ensure that the city's program would be "as professional and safe as possible."

Today, Tukwila's fleet of six UAS are all task-specific, with individual features that range from dual camera mountings to infrared night-vision technology. The aircraft are deployed on jobs big and small, like 3D accident mapping, search and rescue operations, and critical incident response, at a total program cost of $50,000 annually.

"You can talk about spending $3–5 million to buy a helicopter," says Linton, who is now Tukwila's police chief. "UAS provides a tool for efficiency at a much lower cost."

Of course, to the police chief, the value is more than monetary. "Being able to respond in a way that keeps our officers safe is huge," he says. "The saving of lives is a major success."

"I like to think I have the best of both worlds," adds the retired military aviator, "a career in aviation and a career in law enforcement."

For more information:
tukwilawa.gov

STATE OF FLUX

In dealing with the disruption of new technologies, it may help to consider how a range of homegrown Washington inventions and innovations are now a seamless part of our lives.
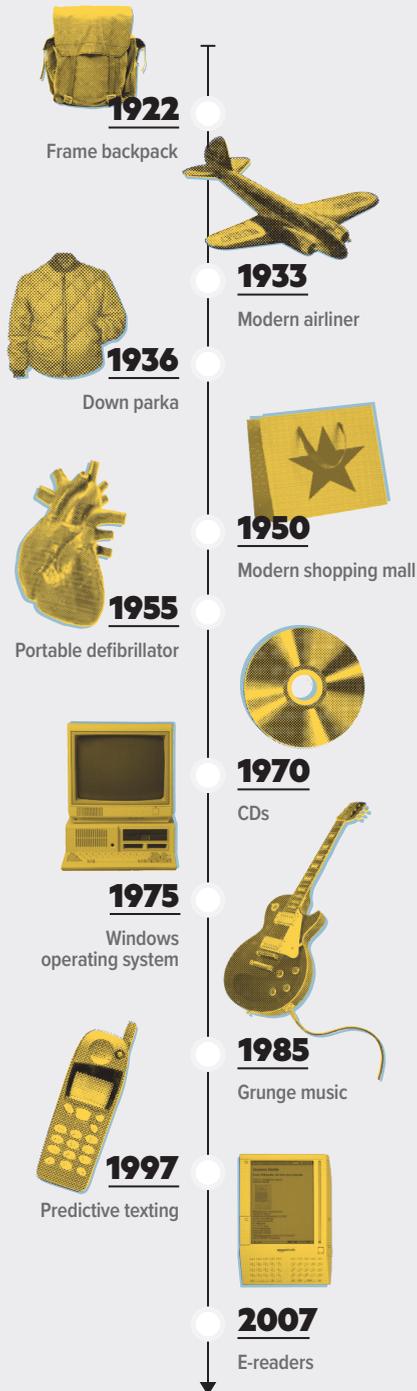
1922
Frame backpack

1933
Modern airliner

1936
Down parka

1950
Modern shopping mall

1955
Portable defibrillator

1970
CDs

1975
Windows operating system

1985
Grunge music

1997
Predictive texting

2007
E-readers

SLICE OF LIFE

CULTURE CLUB

Creating space for workers without a home office

BY TRACY HOWARD GARTON

AT THE COLLECTIVE, a coworking space on Vancouver's Main Street, open desks with ergonomic Herman Miller Aeron chairs are rented for $150 a month, and the perks include locally sourced java, complimentary snacks and beverages, access to blazing 1GB internet, and a conference table bisected by a net for impromptu games of Ping-Pong. Thanks to the gig economy remaking the landscape of commercial office space in cities large and small, coworking hubs like The Collective are becoming the norm for today's workforce.

"The workplace is changing," says Vancouver's economic development division manager, Teresa Brum. "More people are getting out of the traditional office setting, and the idea of coworking spaces responds to that."

In addition to shared desks for itinerant freelancers, The Collective leases private glass pods for one- and two-person startups and private offices for small businesses with up to six employees, providing all the fringe benefits of a traditional corporate workplace. "There's a social aspect to it, too," explains Brum. "When you're an entrepreneur at home, you want to get out of the house and interact with other people."

For Vancouver's self-employed, that need was first met by Columbia Collective, which opened in 2016 on the second floor of a bank building downtown. For one member, web designer Kylan Johnson, the concept proved so transformational that in January 2018 he and a business partner (real estate developer Ryan Hurley) acquired the company, absorbed its members, and changed the name to CoLab Coworking – The Collective.

> **"WHEN YOU'RE AN ENTREPRENEUR AT HOME, YOU WANT TO GET OUT OF THE HOUSE AND INTERACT WITH OTHER PEOPLE."**

"It became a passion project for me," says Johnson, now CoLab's managing director. "We're a first step for a lot of businesses, and the coworking environment gives people a chance to connect in ways they normally might not." CoLab also operates a second, 12,000-square-foot location to accommodate its 300 members, who work in fields from graphic design to bookkeeping.

Business aside, there are personal benefits, too. As CoLab's members meet for monthly happy hours and chat over cold-brew coffee, collaborations happen naturally. "You start to develop relationships in this space," says Johnson. "So people are starting to leverage each other's knowledge and skill sets to help better their own business."

For Vancouver's part, the city is doing what it can to foster the growth of coworking spaces like CoLab. With 96 percent of the city's businesses classified as small (meaning 50 or fewer employees), says Brum, "we take a proactive approach to business development, and coworking is one aspect of that." Johnson also sees the perks of having Vancouver on his side. "Our relationship with the city is really unique," he says. "Vancouver is big enough to do some pretty cool stuff, but still small enough to know who to talk to to get it done."

In that respect, it's just like a coworking space. **C**

For more information:
cityofvancouver.us

POLICE BODY WORN CAMERAS AND PRIVACY

RCW 42.56.240

In 2016, the Legislature exempted body worn camera recordings that may invade a person's right to privacy from disclosure under the Public Records Act.

In doing so, the Legislature stated that "technological developments present opportunities for additional truth-finding, transparency, and accountability in interactions between law enforcement or corrections officers and the public."

The following investigative, law enforcement, and crime victim information is exempt from public inspection and copying under this chapter:

[…]

(14) Body worn camera recordings to the extent nondisclosure is essential for the protection of any person's right to privacy as described in RCW 42.56.050, including, but not limited to, the circumstances enumerated in (a) of this subsection. A law enforcement or corrections agency shall not disclose a body worn camera recording to the extent the recording is exempt under this subsection.

(a) Disclosure of a body worn camera recording is presumed to be highly offensive to a reasonable person under RCW 42.56.050 to the extent it depicts:

(i)(A) Any areas of a medical facility, counseling, or therapeutic program office […]; or

(B) Information that meets the definition of protected health information […];

(ii) The interior of a place of residence where a person has a reasonable expectation of privacy;

(iii) An intimate image;

(iv) A minor;

(v) The body of a deceased person;

(vi) The identity of or communications from a victim or witness of an incident involving domestic violence as defined in RCW 10.99.020 or sexual assault as defined in RCW 70.125.030 […]; or

(vii) The identifiable location information of a community-based domestic violence program as defined in RCW 70.123.020, or emergency shelter as defined in RCW 70.123.020.

[…]

(c) In a court action seeking the right to inspect or copy a body worn camera recording, a person who prevails against a law enforcement or corrections agency that withholds or discloses all or part of a body worn camera recording pursuant to (a) of this subsection is not entitled to fees, costs, or awards pursuant to RCW 42.56.550 unless it is shown that the law enforcement or corrections agency acted in bad faith or with gross negligence.

[…]

(f)(i) A law enforcement or corrections agency responding to a request to disclose body worn camera recordings may require any requester not listed in (e) of this subsection to pay the reasonable costs of redacting, altering, distorting, pixelating, suppressing, or otherwise obscuring any portion of the body worn camera recording prior to disclosure only to the extent necessary to comply with the exemptions in this chapter or any applicable law.

However, the Legislature also recognized the need to balance the public expectation of privacy and not "enable voyeurism or exploitation."

Defined as "a video and/or sound recording that is made by a body worn camera attached to the uniform or eyewear of a law enforcement or corrections officer while in the course of his or her official duties."

This includes any sexual activity or visible body parts that would be considered private.

The law allows certain individuals to have access to the recordings without paying for redaction of the privacy images. Examples include individuals, and their attorneys, who are directly involved in an incident recorded by a body worn camera.

This provision allows law enforcement agencies to recoup the cost of editing for privacy exemptions before disclosure.

HOW HAS TECHNOLOGY AFFECTED YOUR CITY IN THE PAST 10 YEARS?
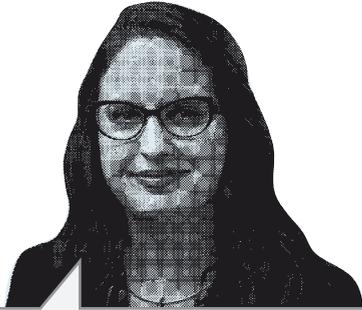
Technology is a lifeline in rural communities, and public libraries offer free access to high-speed internet, computers, and digital services. Our library patrons are wanting opportunities to merge creativity with technology, so we have offered classes from coding to digital moviemaking. We check out robots, telescopes, sewing machines, iPads, and projectors to encourage exploration and creativity. In the past decade, our library has become available 24/7 through its website with e-books, databases, and streaming movies.

—MELODY SKY EISLER
Library Director, Port Townsend

Communicating with our residents has fundamentally changed. The importance of the daily newspaper as a means of conveying information has been replaced by the need to message (and monitor) a myriad of social media platforms. While Bellinghamsters now have instant access to more information on city projects, policies, and programs than ever before, the need for the city to focus on establishing a common set of facts and undoing misinformation has also significantly increased.

—RICK SEPLER
Director of Planning and Community Development, Bellingham

Technology has been vital for Harrington to stay connected in the 21st century. The city has broadband/fiber-optic internet in its downtown core, which has allowed for businesses to be connected in the geographical center of Lincoln County (50 miles west of Spokane). This has provided opportunities for businesses and individuals that require connectivity and allowed remote employees to work in Harrington without having to commute elsewhere.

—JUSTIN SLACK
Mayor, Harrington

TRAININGS

MAY

1	**AWC Workers Comp Retro Annual Meeting** Yakima
1–3	**Labor Relations Institute** Yakima
8	**RMSA Anti-harassment Workshop** Rosalia
22	**Elected Officials Essentials:** *Aligning your resources with your city's strategic goals* Webinar
29	**RMSA Anti-harassment Workshop** Castle Rock
29	**Small City Connector** Harrington
30	**Small City Connector** Entiat

JUNE

4	**Retro WorkSafe Employer** Kennewick
6	**Retro WorkSafe Employer** Olympia
18	**Retro Law Enforcement and Hearing Protection** Webinar
25–28	**AWC Annual Conference** Spokane

TRAINING HIGHLIGHTS

LABOR RELATIONS INSTITUTE
MAY 1–3 Yakima

AWC's Labor Relations Institute is the premier annual training event for public-sector human resources professionals in Washington. It offers important legal updates, practical guidance, labor relations strategies, and networking opportunities to help you navigate the complex and ever-changing world of human resources. Whether you specialize in labor relations or wear many hats, have numerous years' experience in the field or are just getting started, LRI gets you through your workplace challenges. Registration is open now.

AWC ANNUAL CONFERENCE
JUNE 25–28 Spokane

AWC's Annual Conference offers something for everyone. With its city-focused agenda, all general sessions, concurrent sessions, mobile tours, networking opportunities, and social events are designed to educate and inspire. Earn 10 credits toward your Certificate of Municipal Leadership, and return to your community with renewed ideas, insights, and contacts. Registration opens April 17.

For more information: wacities.org

Meter Remade

payment, like a credit card or Apple Pay), when it's time to park, users simply pull into a space; enter the location code posted on street signs, nearby parking meters, or pay stations; select how long they'd like to park; and tap "Pay and Park." Before the allotted time expires (the city keeps tabs on time by scanning license plates, and it still can ticket violators), the app sends a reminder, and the user simply adds more minutes—no need to dash back out to the car or find someone who will exchange bills for coins.

When Bellingham debuted its parking app in December 2016, only 2,000 visitors and residents used it; that has increased tenfold, with 20,000 spots paid for using the app in January 2019. "Which says to us that customers find it convenient," adds Johnson. "It's easier for users to use the technology-based app than dig through their car to find that quarter."

WHEN IT'S TIME TO PARK, USERS SIMPLY PULL INTO A SPACE; ENTER THE LOCATION CODE POSTED ON STREET SIGNS, NEARBY PARKING METERS, OR PAY STATIONS; SELECT HOW LONG THEY'D LIKE TO PARK; AND TAP "PAY AND PARK."

The city still maintains its coin-operated meters for those who prefer to park the old-fashioned way, whether balking at the 25-cent service fee PayByPhone charges its customers for each parking transaction or preferring not to enter their personal information into an app. It's worth noting that Bellingham collects no user data from the app, nor does it collect any concession fees by allowing the company to operate as a vendor within city limits.

In fact, since the app's debut, revenue collected from fines for expired meters has fallen substantially—monthly overtime parking citations in Bellingham's downtown core have decreased by more than 25 percent—as motorists now have an easier, and more convenient, way to comply with the city's parking regulations. But far from lamenting the hit to a city revenue stream, Johnson says the drop in fines is part of the point.

"Our goal is to push the revenue to the meter and get the number of tickets to come down: that's a far better way to manage a parking system," he explains. "Technology isn't without its issues—it has to be managed—but overall, we're in the business of providing services to citizens, and this was a good way to increase that service for our community." ꞓ

—*Kirsten Dobroth*

For more information:
cob.org

Cityscope

Q&A

Valley View

Lifelong resident and Kent Mayor Dana Ralph discusses the difficulties the city has faced since a statewide sales tax change, along with her vision for a revitalized Kent Valley.

City of Kent Mayor
Dana Ralph

Your family has a long history in Kent; what made you decide to get involved in local government?

My family's been in Kent for four generations. I met my husband when we were in high school, and I started my business [Advance Billing Systems, a medical billing and notary public service] here 24 years ago. About 15 years ago, I had complained about some changes in Kent, and my comments made their way back to our then-mayor, who called me out of the blue and said, "If you're going to complain about things, you need to do something about them," and appointed me to the Land Use and Planning Board for the City of Kent. I then joined the Arts Commission and served on the Kent City Council for six years before being elected mayor in 2017, starting my term on January 1, 2018.

Warehousing has been a key component of Kent's economy; how has the shift in internet commerce affected that business sector?

The region and our state depend

on the services that Kent can provide when it comes to warehousing and distribution, because things coming into and out of our ports need to have a place to land. Statewide, the sales tax associated with those goods went from being origin-based—so the sales tax used to be paid to where the products were shipped from, which is here in the Kent Valley—to as of 2008 being paid to the municipality where those things are shipped.

What was the ripple effect from that change?
The warehouses are still taking up space from other revenue-producing businesses, and we still have the truck traffic, which is extremely hard on our infrastructure. We implemented a business and occupation tax in 2012 to make up some of the revenue—it's not a great option, but it's one of the only ones we had since we no longer had sales tax revenue from our warehouses going toward the city's operating costs. Other impacts have been things like maintaining our infrastructure in parks, we're extremely underfunded in our police department—all those things came from sales tax revenue in Kent's general fund. It was devastating.

Hasn't the state been helping Kent offset that impact?
Streamlined sales tax (SST) mitigation payments started not long after the change, so it helped fill the gap, but the payments were calculated during the recession, when fewer shipments were leaving Washington. We're reasonably sure that in today's dollars, it's about $14 million;

the mitigation payments were just under $5 million starting in 2009, so we're still short on revenue.

Governor Inslee's proposed budget calls for ending those mitigation payments this year; how is Kent responding to that?
It's fair to say we weren't necessarily surprised, but we were extremely disappointed.

In the meantime, Kent's looking for ways to diversify

"THE KENT VALLEY SAW THIS WITH BOEING BACK IN THE 1960S. . . . IT'S NOT ONLY THE JOBS THAT BOEING ADDED, BUT THE JOBS THAT THEIR SUPPLIERS BRING, TOO. WE BELIEVE THAT BLUE ORIGIN WILL HAVE THE SAME KIND OF POSITIVE IMPACT ON THE VALLEY."

There are 11 cities that have been impacted by this sales tax change that receive mitigation payments, and we're working with them collectively. I have been to Olympia with other mayors to testify on continued mitigation, and we're hopeful that there will be something in the budget.

its economy.
Yes, Rally the Valley is an initiative that we're just starting, and it really reenvisions the entire Kent Valley from Renton to Sumner. We're looking at opportunities to bring in advanced manufacturing and technology-type employers. We're very strategically located and affordable compared to other areas, so we feel like the Kent Valley is a good option for businesses looking to relocate from within Washington or move into the state.

Have you attracted any companies yet?
Blue Origin is here in Kent, and they're expanding and adding about 1,000-plus new employees here next year. The other piece of that is that they'll need suppliers. The Kent Valley saw this with Boeing back in the 1960s, when they brought [contracts from NASA's Apollo program] here: it's not only the jobs that Boeing added, but the jobs that their suppliers bring, too. We believe that Blue Origin will have the same kind of positive impact on the valley.

What's the takeaway, from Kent's story, when it comes to looking for future economic development opportunities?
At the time, warehousing made sense for Kent, and it helped us build out a lot of our infrastructure, but we can't put all of our eggs in one basket. We have to diversify and make sure that changes to one single sector don't devastate our economy. Right now, we're excited for what the future holds in regards to the industries growing here in Kent, and the possibility of new ones moving forward. c

Kent

Cityvision looks at how Kent confronts the digital economy by embracing its space-age heritage.

POPULATION

2010 **92,411** / **2017** **128,900**

2017 SOURCE: WA OFM

DEMOGRAPHICS

52% White

20.1% Asian

15.9% Hispanic or Latino

11.4% Black or African American

1.3% American Indian/Alaska Native

1.7% Native Hawaiian/ Pacific Islander

6.1% Two or more races
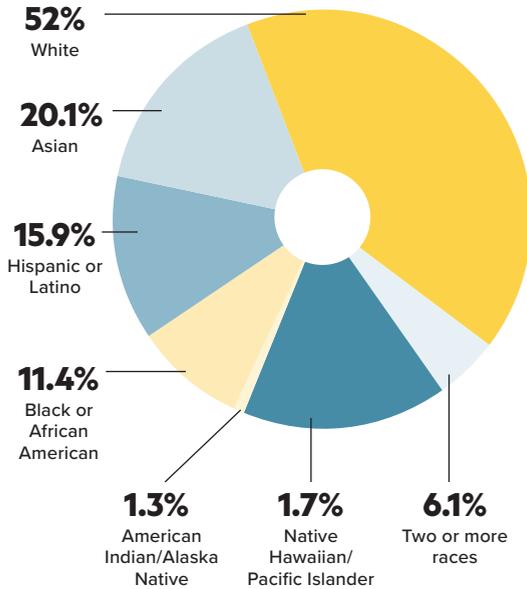
BLUE MOON

260k

Size, in sq ft, of Blue Origin's Kent headquarters

1,100 Number of employees who work there

$250k Expected cost of a space tourist seat aboard Blue Origin's New Shepard rocket ship

750k Size, in sq ft, of the company's new rocket production factory at Kennedy Space Center

SOURCES: KENT REPORTER, SPACE NEWS

BACK TO THE FUTURE

3 Number of lunar rovers Boeing assembled in Kent that were flown to the moon

$234M Cost of lunar rover development (in today's dollars)

$125K Fundraising goal for interactive lunar rover display planned for downtown Kent
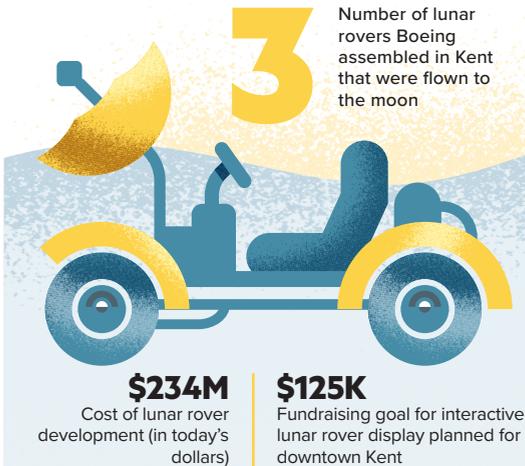
SOURCES: NASA, KENT REPORTER

BLUE-COLLAR ROOTS

80,500 Kent Industrial Valley jobs

$5.9B Labor income from those jobs

$10.9B Business revenue

SOURCE: CITY OF KENT

E-COMMERCE BLUES

$12.7M

Estimated annual sales tax revenue the city lost due to state destination-based sales tax in 2012

$4.9m Streamlined Sales Tax mitigation payments the city received from the state in 2017

$0 SST payments the city is slated to receive in 2020 in current governor's budget

SOURCE: PUGET SOUND REGIONAL COUNCIL, SST MITIGATION EXECUTIVE COMMITTEE

FIRM
FOUNDATI

WASHINGTON CITIES BUILD THE FRAMEWORK FOR SECURING COMMUNITY IN AN AGE OF DIGITAL DISRUPTION.

by **TED KATAUSKAS**
photographs by
KAYLA KELLY & DANIEL BERMAN

At the height of a vacation-home construction boom 13 years ago in Chelan, a rural city of 4,000 whose population swells more than sixfold during the summer tourist season, a group of concerned citizens founded the Lake Chelan Community Land Trust. Modeled after non-profits that preserve open space threatened by development, Chelan's land trust sought to use the same formula to create a sanctuary for another endangered public resource: affordable housing.

In just three years, the median home price in the Chelan Valley had more than doubled, as Seattleites with dot-com-enriched portfolios invested in ever more expensive vacation homes, pricing the city's workforce out of the housing market. To combat this trend, the land trust sought to purchase acreage it would hold in trust as an affordable housing preserve, then use donated funds to build modest homes on the parcel that would be sold at below-market rates to local families earning a working wage.

Without broad-based support, however, the Lake Chelan Community Land Trust ultimately disbanded. Meanwhile, another phenomenon was reshaping the economy of Chelan and vacation communities the world over: home sharing, fueled by internet-enabled startups like HomeAway (an Austin-based online vacation rental clearinghouse that acquired Vacation Rental By Owner in 2006) and Airbnb (founded in 2008, famously, by a pair of roommates who made the stratospheric rent of their Bay Area apartment affordable by marketing a living-room air mattress online as a virtual bed-and-breakfast).

With online home sharing's rise, the vacation home evolved from pied-à-terre, a luxury asset for the wealthy, to cash cow. According to AirDNA, which collects metrics on Airbnb rentals in cities worldwide, the average Chelan vacation home, when used solely as a short-term rental, generates $37,000 a year in income, while a private room listed as a short-term rental earns $19,000 a year. Owners of vacation homes began leveraging that extra income to subsidize heftier mortgages, further inflating housing prices (in 2003, the median sale price of a home in Chelan County was $131,400; today it is $334,000), while empty-nesters with extra rooms began marketing apartments that had been leased year-round to locals as weekend or weekly accommodations for vacationers, spiking monthly rental rates (in 2000, just 2 percent of renters in the county paid more than $1,000 a month in rent; today the average monthly rate for a studio apartment in Chelan is $1,132). With vacancy rates hovering near zero, local wage earners look elsewhere for available, and affordable, housing; a third of Chelan's workforce now resides outside the city limits, with daily commutes of 25 to 50 miles being commonplace.

"It's just one of the unintended consequences of the internet, I guess," says John Olson, a 1965 graduate of Chelan High School who retired to his hometown after 50 years in Tacoma and, shocked by what he saw, became an affordable housing crusader. "There are some good sides to short-term rentals: they provide more housing opportunities for tourists, and they allow people to buy real estate they otherwise couldn't afford. But overall, the benefits are to the individual, not to the community.

Echoing this sentiment is Rachael Goldie, a more recent Chelan High grad who returned to the city in 2012 with a global studies undergraduate degree from the University of Washington.

"They started Airbnb just wanting to share their living room with people, and then it turned into this thing that is actually affecting people who don't have homes," says Goldie, who can relate, having bounced from couch to couch before finding an "affordable" $845-a-month apartment in Chelan that she shares with a roommate. "When you have a cluster of vacation

homes that are occupied only during the summer when most people come to recreate, that affects the livability of a community. You walk down the street and have five different houses that are almost never occupied, the sidewalks aren't shoveled.... It just makes the city feel empty, hollowed out."

"FOR ME, IN MY HEART, I'D LIKE TO SEE US BUILD, AS A COMMUNITY, SOMEBODY'S FIRST HOME BEFORE WE BUILD SOMEBODY'S SECOND HOME. AND I HOPE EVERYBODY GETS THAT. WE ARE IN A CRITICAL PERIOD OF OUR TOWN'S HISTORY."

—MIKE COONEY MAYOR, CHELAN

Mayor Mike Cooney at Chelan City Hall

After working for minimum wage as a tasting-room attendant at several local wineries, Goldie settled into a job pulling shots as a barista at The Vogue, a coffee shop and wine bar with an open-mic stage that doubles as Chelan's unofficial town hall—and appropriately enough is owned by Mike Cooney, the city's mayor. Hearing Goldie talk about the housing woes of Chelan's working class, Cooney encouraged her to run for council, and in the fall of 2017 she did, making affordable housing a central focus of her campaign.

The 28-year-old barista had her work cut out for her: in addition to making espresso at The Vogue, she also waited tables at a local inn and operated a bookkeeping business on the side, so finding the time and effort to campaign was no mean feat, to say nothing of the fact that Goldie was a young newcomer to local politics. In the end, she lost her race by just 56 votes, but Goldie says she's gratified to have had the opportunity to rally her community around an issue she cares deeply about.

"Rachael did not win, but her issue resonated really well with the community, and that was to create an affordable housing initiative to address the middle class disappearing from our town," recalls Mayor Cooney, who convened a town hall meeting on January 16, 2018, the first of many public forums crowding calendars from spring through fall.

Standing beside an easel with a bullet list outlining the elements of the essential problem ("lack of starter homes to own; high rents in town, low inventory; no relief in sight") and its fundamental roots ("growth of high-end second homes; increasing # of vacation homes; lack of high-wage jobs"), Cooney addressed a crowd that packed council chambers.

"When I was on council ... I did not believe that it was hard to find affordable homes in Chelan," said the former Seattleite, who was elected to Chelan's council in 2007, two years after he and his wife retired full-time to the vacation home that became their permanent residence. "Things have changed."

The mayor introduced a consultant the city had retained to draft proposed regulations for short-term rentals, as directed by a revised 20-year comprehensive plan Chelan's council had adopted that past November, then later closed the meeting to accept another challenge mandated by the plan.

"We feel it is a right for people to have your own home here," he told the audience gathered that evening. "For me, in my heart, I'd like to see us build, as a community, somebody's first home before we build somebody's second home. And I hope everybody gets that. We are in a critical period of our town's history."

Earlier this year, Sammamish, another city on a lake, confronted one of the most critical challenges of its history, thanks to an altogether different type of technology-driven disruption: a ransomware attack. When the first employees showed up for work at city hall just after 7 a.m. on January 23, some discovered that their computers were running agonizingly slowly or not responding at all. Detecting a malware virus, IT staff powered down shared servers in an attempt to contain its spread. But they were too late; hackers had seized control of the city's servers, encrypted all data, and demanded that the city pay a ransom for a code that would unlock it. Notified of the attack, Interim City Manager Larry Patterson got in contact with the FBI and declared an emergency, allowing the city to bypass contract bidding procedures to retain the services of LMG Security, a Montana-based cybersecurity consulting firm recommended by the City of Issaquah, which had been targeted by similar, but unsuccessful, malware attacks.

The attack couldn't have come at a worse time for Sammamish, which had just recently seen major turnover in its top management positions, including the city manager, deputy city manager, and IT director. After auditing the city's computer system and security protocols, the previous IT director had identified substantial weaknesses and had recommended hardware and software upgrades, but this issue got lost in the transition.

"All of that led to a perfect storm that left our computer system vulnerable," says Patterson, a Bend, Oregon, contract administrator and 40-year veteran of city government who had been hired in September to oversee the transition. "I was just getting the lay of the land and dealing with some pretty hot topics when we got hit with the virus."

Advised not to pay the ransom (since there was no guarantee that the hackers would unlock the data once paid), the city established a plan to eradicate the virus by wiping all computer hard drives and servers, reinstalling all server operating systems from backups, and restoring the locked data from backups, a painstaking process that would take weeks, during which the city would essentially be thrust back to the predigital age. The city sent out a call for mutual aid—and was humbled by the response.

"We were not the first city in the area to be hit," explains Communications Manager Sharon Gavin, who notes that Yarrow Point, another small city on the east side, had experienced two cyberattacks. "People were very understanding."

Homestreet Bank sent computer security experts. The City of Bothell dispatched its IT department. Employees from Microsoft and Amazon, computer science students from the University of Washington, and volunteers from the community and all across the region offered to do whatever they could. One of them was Steve Schommer, who had just retired in September after more than 31 years at the Northshore Utility District in Kenmore, most recently as its IT director, and who has extensive cybersecurity training and experience.

"They sent an email out to emergency managers in the region for help to start rebuilding endpoint computers, reinstalling Windows, and getting it all reconfigured," Schommer recalls. "It's a very tedious mental process to rebuild 100 computers, so I decided to stop by and see what I could do."

Showing up at city hall six days after the attack, he was sur-

Sense and Senseability
Q&A CARLO RATTI

Architect and engineer Carlo Ratti, director of MIT's Senseable City Lab, talks about why cities need to adopt a "senseable" approach to fostering innovation in urban areas.

What's a "senseable city"?
"Senseable" implies both the sensitivity of digital technologies capable of sensing and responding to citizens' needs and the more human quality of being "sensible," of keeping people and their desires at the center.

How does that differ from the concept of a "smart city"?
The technological foundations for the two concepts are the same; the difference is one of focus. I see the more commonly used concept of "smart city" as reflecting the current technological trend by which the spaces around us are becoming permeated with digital data—the internet is becoming the internet of things. The term "senseable city" humanizes this approach: I believe it better encapsulates the social benefits gained by embedding internet-of-things technologies into our urban spaces.

You've said that local government should create the conditions needed to grow "innovation ecosystems." What do you mean by that?
Supporting academic research in cities and promoting applications in fields that might be less appealing to venture capital is an important government role. The public sector can also promote the use of open platforms and standards in such projects, which would speed up adoption in cities. But overall, I think that their most important role is to create the conditions for urban innovation to flourish in a bottom-up way, supported by private funds.

What's one example of a city that's doing a good job of this?
Singapore's approach toward self-driving cars. The government has changed regulation, brought around the table both private and public decision makers (through a committee called CARTS, to which I also belong), promoted venture capital investment, and in so doing generated a very rich innovation ecosystem.

Explain your concept of the 2-50-75-80 ratio, and how it applies to cities.
At the global level, cities make up 2 percent of the earth's surface but receive 50 percent of the population and are responsible for 75 percent

prised to find that in the haste to get the city's computer network running again, nobody was working on an upgrade of hardware and software systems that would be needed to prevent another attack. Schommer offered to install the cybersecurity system he had put in place in Kenmore, which had thwarted multiple attempted cyberattacks, and he was hired to do that, and more, as the city's interim IT director.

"The day I arrived there, the city was in 'trying to restore services' mode," recalls Schommer. "And I realized that they had not addressed the security perimeter. It's analogous to a military operation: without a perimeter, the enemy can just walk right back into your camp. So my goal was to put all of our resources on that so that whatever we construct behind the perimeter will be safe and secure."

After procuring and installing a next-gen firewall replacing the city's existing firewall, Schommer procured specialized cyber-security hardware and software to safeguard it. That included a network security appliance that monitors digital traffic flowing into the city's infrastructure, instantly breaking any connection the device detects as suspicious activity. In addition, Schommer installed advanced email threat protection services that inspect all incoming emails for malicious attachments or links, immediately quarantining them, as well as a proactive endpoint that scans for malicious viruses that may have migrated into the system from an external device.

Once Schommer was satisfied that an effective security perimeter was in place, the work of restoring data from backups began. Like many companies and municipalities, Sammamish had relied on cloud services for its daily data and server image backups, but downloading the six terabytes of data the city had stored in the cloud over even the highest-speed fiber-optic lines would take more time than they had. With many services virtually paralyzed,

> ## "I REALIZED THAT THEY HAD NOT ADDRESSED THE SECURITY PERIMETER. IT'S ANALOGOUS TO A MILITARY OPERATION: WITHOUT A PERIMETER, THE ENEMY CAN JUST WALK RIGHT BACK INTO YOUR CAMP. SO MY GOAL WAS TO PUT ALL OF OUR RESOURCES ON THAT SO THAT WHATEVER WE CONSTRUCT BEHIND THE PERIMETER WILL BE SAFE AND SECURE."
> —**STEVE SCHOMMER** INTERIM IT DIRECTOR, CITY OF SAMMAMISH

City of Sammamish Interim City Administrator Larry Patterson, left, and Interim IT Director Steve Schommer in front of a map of the city

Sammamish asked its provider to transfer the data to a hard drive, which consumed more than a week; when the disk arrived in the mail, another delay ensued when the city discovered the provider had uploaded the wrong files. Once it had the data it needed, the information had to be uploaded onto three separate server hosts—a daylong process for each.

"The moral of that story is: the cloud is great for a lot of things, but I would argue it's not the best solution for rapid recovery of server and endpoint backups," Schommer advises, adding that Sammamish now will have a multilevel backup scheme. "Cloud backup conceptually is fine, but when you need to provide customer service functions as an organization, time is a factor."

Functions like issuing building permits, dog licenses, and passports; processing work orders; and paying vendors (and employees), which all came to a standstill on the morning of January 23.

"From the beginning we knew we had to be completely transparent about our situation, so we put out messages through social media and on our website: This is what's happening, here's what we can do, here's what we can't do. We also created an FAQ page about the situation and provided updates as we worked through issues," says Gavin, Sammamish's communications manager. "Cities used to work without computers all the time. We just had to find new ways to do our jobs."

Which more often than not happened to be the old way. When the city finally reopened its permit office on February 15, Gavin posted a tongue-in-cheek announcement on Sammamish's Facebook page: "Even though our permitting system is still down due to the ransomware … our Customer Service Artisans will be happy to help you with the genuine, hand-crafted paperwork you need to get stuff done."

At press time in late March, Sammamish was still in a state of emergency due to the ransomware attack. Although the final bill had yet to be tallied, Schommer noted one industry estimate that said recovering from a debilitating ransomware attack for a local government of Sammamish's size averages just over $3 million in both direct and indirect costs.

"We've done some tremendously positive and wonderful things with technology, but the landscape of cyberattacks has changed: these threat actors will get access to a city's system, and then they will sell that access to somebody else on a Dark Web site. It's a business," says Schommer, adding that cybersecurity industry contacts tell him they typically respond to four new local, state, or federal government ransomware attacks on the West Coast each week. Sammamish, which hopes never to be one of them again, has nearly doubled its annual IT budget in 2019: to $3 million.

"Not only are we containing this issue," says Patterson, "but we are preparing for the future as well."

As is Chelan. In March 2018, the city retained the services of an expert to help address its affordable housing crisis: Julie Brunner, a housing and community consultant and housing director at OPAL Community Land Trust on Orcas Island. Founded in 1989, OPAL pioneered the concept of using the conservation movement's land trust model to create permanent affordable housing in Washington. The way it works

of energy consumption and 80 percent of CO_2 emissions. If we improve our cities, even marginally, we can have a great impact on the entire planet. New technologies allow us to use existing urban infrastructures more sustainably.

Like car sharing.
Today, on average, a car is kept in motion only for 5 percent of the time. For the remaining 95 percent, it is unused, parked somewhere. The arrival of self-driving cars will increase the demand for sharing, which is already growing thanks to car-sharing services. I believe this will allow us to create more sustainable urban systems.

What's one thought you'd like to leave for local government officials to consider?
The need for governments to recognize that they must create situations in which new technologies and innovations from the private sector can develop and make cities more efficient, supporting traditional incubators while also aiming to produce and nurture the regulatory frameworks that allow innovations to thrive. Considering the legal hurdles that continuously plague applications like Uber or Airbnb, this level of support is sorely needed.

How can cities help workers whose jobs or careers might be threatened by advances in technology?
I believe the key words around which we can start

a constructive discussion here are "transition" and "redistribution." Transition—to be able to manage the technological upheavals without being overwhelmed, to help those who have lost a job find another and to educate the new generations in tomorrow's professions. Redistribution—because it is essential to understand who will benefit from the new system.

How do you accomplish that?
An idea would be to levy taxes on robots or other new forms of artificial intelligence.

Robots and AI?
This isn't a joke: it means taxing capital and transferring income to those who may have lost their jobs. This proposal was unfortunately rejected by the European Parliament a few months ago, but not long after, it found unexpected supporters like Bill Gates.

Why is that important?
If we can manage transition and redistribution, the future could offer us many opportunities: not the end of work, perhaps, but the replacement of less pleasant jobs with more creative ones with greater added value. As John F. Kennedy said in a speech in 1962, "We believe that if men have the talent to invent new machines that put men out of work, they have the talent to put those men back to work." The times of great transitions have always been also those of great possibilities.

(from left) Councilmember Tim Hollingsworth, Rachael Goldie of Chelan Valley Housing Trust, and Mayor Mike Cooney on the porch of The Vogue in downtown Chelan.

"A YEAR LATER, IT'S REALLY HARD TO BELIEVE THAT WE STARTED OUT JUST CHATTING ABOUT THIS, AND NOW IT'S BECOME A HOUSING TRUST THAT HAS WIDE COMMUNITY SUPPORT."

—RACHAEL GOLDIE CONTRACT ADMINISTRATOR, CHELAN VALLEY HOUSING TRUST

is elegantly simple: the nonprofit acquires a tract of land that's held in trust as a community asset; develops no-frills, modestly sized homes that are sold to qualified buyers at below-market rates and financed with fixed, low-interest-rate loans; and leases the land beneath the home to the owner, who agrees to resale restrictions that keep the home affordable for the next qualified buyer. Since its founding, OPAL has developed 105 affordable homes on Orcas Island, with more than 70 home resales (a 1,224-square-foot, two-bedroom home in the reserve recently sold for $207,000 in a market where the median listing price is $550,000).

"There are a couple benefits to having a community land trust be involved," says Brunner, who recently advised the City of Houston about the model. "One of them is that we know how to do owner-occupied affordable housing and keep it affordable. The other is this idea of community control and community determination.... You can't pull something like this off without broad support in a small community. It just can't happen."

Over three days in April 2018, Brunner visited with stakeholders in Chelan, convening roundtable discussions with employers, social service providers, builders, real estate professionals, Chelan's Latino community, and the city's council and planning department and ending her visit with a presentation about the land trust concept at a community forum at The Vogue. She met with the city's eight-member affordable housing committee, including Mike Cooney, Rachael Goldie (newly appointed as a planning commissioner), and Tim Hollingsworth (a surveyor who had been elected to Chelan's council in November 2017), three friends who had begun meeting regularly at The Vogue to discuss affordable housing. That conversation crescendoed in the weeks following Brunner's visit, and by June the committee had chartered a new nonprofit, the Chelan Valley Housing Trust, with a level of community engagement that had eluded its predecessor a dozen years prior.

"The land trust made sense: it was a good fit for a fairly conservative but tight-knit community not necessarily looking for big-government solutions," explains Hollingsworth, the trust's board president, who notes that the nonprofit is a community effort, relying on donations of not just land but capital and services from local businesses and residents. "We've had good feedback from a variety of different viewpoints,

from conservative businessmen to more progressive social service groups—everybody can see where they fit in with this organization."

Brunner puts it this way: "Cities aren't good at owning housing and building housing, but they do have the resources to make housing happen."

Following the lead of the city, which has earmarked $100,000 to defray the Chelan Valley Housing Trust's operational costs for five years and pledged another $100,000 to subsidize hookup fees for new homes, developers of The Lookout (a lakeside enclave of high-end vacation homes) donated a 2.5-acre parcel of land outside the gated community, along with blueprints for single-family homes; North Cascade Bank pledged $2 million in construction loans; one general contractor chipped in $50,000; and a local resort donated $25,000 while offering guests who contributed to the nonprofit a discounted "affordable housing" room rate. In addition, Chelan County recently joined the partnership, donating a 20-acre parcel and $100,000 to the cause. By next year, the trust expects to hand 17 new owners the keys to 1,100-square-foot homes, priced at around $200,000 and financed by conventional mortgages and USDA direct low-interest loans.

Although she's still sharing an apartment, Rachael Goldie now has her dream job: a half-time position as the trust's administrator.

"A year later, it's really hard to believe that we started out just chatting about this, and now it's become a housing trust that has wide community support," she says. "I think it could be the same anywhere, as long as you have the right people start it."

People like Goldie, the daughter of an apple packer who grew up understanding what it was to want and decided to do something about it.

"At the age of 30, she's kind of thinking about buying her first home, and there's two numbers that will never match up no matter how hard she works: the median household income is about $45,000 a year, and the median house price is about $450,000," says Mayor Cooney. "It's such a cool and compelling story that she's now leading the charge to get affordable homes built for families just like hers."

Both earning, and building, her community's trust. **C**

Citywise

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As novel as the tax collection solutions required to address them have been, online sales are only the tip of the technological iceberg confronting tax collectors.

—CITY 101 P.26 ▶

LEGAL AFFAIRS

Scoot Safe

Possible regulatory measures to consider when approving a program of municipal e-scooters include the following:

- ■ Protect rights of way and private property: prohibit e-scooters and bicycles from being left where they don't belong, and allow city employees to harvest those that are in violation.

- ■ Consider regulating companies that do harvesting privately— they're like towing companies and need to be regulated.

- ■ Recoup costs of regulation and costs for right-of-way maintenance and increased liability exposure.

- ■ Consider safety measures to include age requirements, mandatory helmet use, limits on where the devices may be used or parked, and safety notices.

- ■ Impose insurance and indemnity requirements.

- ■ Establish regulations concerning how devices will be maintained, charged, and reallocated around town.

- ■ Consider geofencing to prohibit use on some highways or in other areas.

MOBILE CAUSES

Considerations on e-scooter programs and other transportation disruptions

CHARLES W. THOMPSON, JR. EXECUTIVE DIRECTOR, INTERNATIONAL MUNICIPAL LAWYERS ASSOCIATION

NORMALLY, THE WORK of the International Municipal Lawyers Association (IMLA) involves Constitutional issues as we support local governments in the Supreme Court and in courts around the country. But our members are facing more immediate and practical problems of disruptive technologies. These include the rapid evolution of micromobility devices, autonomous vehicles, and the sharing economy, including housing, vacation rentals, cars, and services. In response, IMLA formed a work group specifically focused on disruptive transportation technologies.

Early in this decade, the first large experiments in public-use bicycles surfaced on American streets. These municipally funded public-private partnerships offered docked cycles, secured in dedicated stations around town. Technology drove further innovation; along came the "dockless" bike, soon after outfitted with long-lasting, lightweight, rechargeable battery packs. And while bicycles could easily be converted to e-power, a much smaller and far less expensive mobility alternative was even better suited to such adaptation—the e-scooter.

At first viewed as an oddity, the new devices rapidly gained adherents. With a top speed of 15 miles per hour, they easily compete with other transportation options in rush-hour traffic. In motion, they occupy scarcely more space than a pedestrian; when parked, they fit in spots that would never accommodate bicycles. They are so easy to use that it is no longer rare to see businesspeople gliding down big city streets on e-scooters.

The new devices require virtually no private infrastructure and only modest up-front capital outlay, yet micromobility companies stand to generate remarkable revenues. At potential top-line revenue of more than $750 per month per unit, e-scooters purchased in bulk for $250 each or less offer a generous return, even assuming an average lifespan of just four months. The rewards extend beyond user fees; these devices yield a valuable trove of user data that can also be monetized.

AT POTENTIAL TOP-LINE REVENUE OF MORE THAN $750 PER MONTH PER UNIT, E-SCOOTERS PURCHASED IN BULK FOR $250 EACH OR LESS OFFER A GENEROUS RETURN.

To the average resident, micromobility devices enhance the enjoyment of their urban lifestyle and often fill gaps in their transportation needs. To younger residents, these new choices for transportation often make city living affordable, and at colleges they can greatly expand mobility. Nevertheless, nothing comes

without cost, including a spectrum of fresh legal and logistical challenges.

Neither roads engineered for motor vehicles and bicycles nor sidewalks engineered for pedestrians were designed for e-scooters. Surface imperfections that drivers cannot feel in a car might upend an e-scooter. Sidewalk elevation changes that trip unwary pedestrians can kill a person traveling at 15 mph or more. Without changes in the laws affecting municipal liability, cities can expect to defend more claims based on street and sidewalk maintenance. Similarly, choosing to allow e-scooters and bicycles to use sidewalks creates additional challenges. Claims that the city allowed these uses at the risk of pedestrian safety will likely follow as injuries occur.

Despite these increased risks, micromobility companies refuse to accept liability for injuries caused by or to their users. Forcing insurance requirements on the e-mobility companies, while necessary, only provides limited protections, as the city will always be the high-dollar defendant absent changes in law.

IMLA's recent publication "Guidance for Regulation of Dockless Micromobility," drafted by a consortium of local government attorneys, lays out some parameters to address one phase of developing technology. Their recommendations can be summarized as follows:

■ Enact laws that prohibit the placement of unauthorized e-scooters (or other micromobility devices) on city streets, sidewalks, and rights of way. This regulation empowers municipal hands to remove, embargo, and, if necessary, dispose of nonconforming devices.

■ Require shorter-term trial periods before entering into any lengthy contractual arrangements.

■ Select from among a host of regulatory options to enable orderly, safe, and optimal operation within municipal territory; see "Scoot Safe" (at left, p. 22) for some suggestions.

■ Require the companies to provide information about usage patterns and generalized demographic data and audits, and use the data to make changes in the transportation component of the master plan.

■ Recoup actual and anticipated costs. Virtually all municipalities charge up-front fees for permitting, whether in a lump sum or on a per-device basis or both.

As to this last suggestion, critics of licensing fees argue that they will drive the e-scooters from city streets entirely. There is a balance that needs to be evaluated. Many of the costs that cities will absorb are not readily determinable, as claims for damage and liability often have a gestation period of three or more years. A company claiming the city's fees are too high because its anticipated costs are low needs to face a rebuttal that includes projections for increased casualty loss and increased maintenance of those areas of either streets or sidewalks where the devices will be allowed, recognizing that these vehicles do not contribute to maintenance through a gasoline tax.

E-scooters seemed to arrive very rapidly, and it's important to note that other disruptive transportation technologies, including autonomous vehicles, are also on the horizon. They will enrich our lives, can reduce congestion, and ultimately promise to reduce accidents—but will no doubt bring new challenges. While bringing convenience, autonomous vehicles and robotic transport units will clearly create new risks—including the prospect of remotely controlled terrorist attacks, which will require cities proactively to develop regulations that protect residents from these risks. IMLA and its nationwide membership of local government attorneys look forward to that challenge. ℂ

Charles W. Thompson, Jr., *has been a local government lawyer for over 40 years and lectures on local government law at George Washington University in addition to serving as Executive Director of the International Municipal Lawyers Association.*

CITY 101

Best in Class

Three ways innovative companies are building future workforces

1 Retraining

The retail industry has been hit hard by automation. Many brick-and-mortar stores are retraining store employees to give shoppers a reason to shop in person rather than going online. For example, one beauty retailer trains entry-level cashiers to become beauty advisors so they can provide more knowledgeable, personalized suggestions to customers.

2 Cross-Training

To prepare for the digital age, innovative companies are helping workers to develop multiple skill sets. One multinational technology and consulting company offers its workforce a library of nearly 2,000 online courses. Employees can deepen their knowledge in core technical fields while picking up new skills linked to their career aspirations.

3 Flex Time

Leading digital companies give employees time to work on their own projects, develop new ideas, and put their skills to the test in live prototypes. This approach encourages a constant flow of fresh ideas and motivates staff.

SKILLS SEARCH

What cities can learn from companies about retraining the workforce

TIMOCIN PERVANE & AXEL MILLER OLIVER WYMAN FORUM

TECHNOLOGY has been changing skill requirements since the Industrial Revolution. But automation, big data, and artificial intelligence have sped up the pace of workforce transformation. Jobs that exist today may not tomorrow. Completely new jobs will need to be filled quickly, and most existing jobs will change significantly. As a result, a skills gap is developing, as many workers today don't yet have what's needed for the jobs of the future.

Like leading companies that are investing in learning and development programs to retrain and reskill their workforces, cities can play a valuable role in preparing their citizens for the future—including city employees. They also have a huge incentive to do so to ensure that their communities will thrive.

So what are leading companies doing? First, they are identifying the key capabilities their workforces need to fulfill future strategic goals, such as stronger technical skills to fill the growing demand for data scientists, robotics experts, cybersecurity experts, and user-experience designers. They are also balancing traditional training with employee-driven learning, recommending courses based on evolving business demands while providing employees with the freedom to pursue training even for interests outside their core job requirements—for example, providing sales staff with the option to learn coding. In addition, leading companies are integrating new learning platforms into existing performance and talent-management systems so that learning goals are tied to workers' performance ratings.

Cities should likewise assess the risk to their citizens' jobs by investing in understanding the scale and nature of emerging needs. In many ways, cities face a greater challenge than companies: they need to think about all of their citizens, not just pick and choose whom to train, as companies can. Numerous tools, such as one offered by Oxford University's Martin School, can help cities determine which jobs are vulnerable so that they can engage with specific companies and target resources to the industries or geographic areas where jobs are at greatest risk.

Once cities identify sources of risk and emerging needs—say, a shortfall of 1,000 coders is identified—they can consider designing a training program like a new computer science certificate. Training programs need to be targeted broadly to include retraining programs for those in at-risk roles, back-to-work programs for people who are unemployed, and opportunities for students still at school to obtain vocational skills needed for future jobs. Many of these initiatives can also tap into private-sector expertise through public-private partnerships to provide specific training needed by particular employers.

Finally, cities should help their citizens continue to acquire new skills by raising community awareness of the emerging need for new skills and providing opportunities and incentives for citizens to develop them. **C**

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CITY 101

COLLECTORS' ITEMS

Ongoing revenue challenges in the age of digital commerce

GIL BREWER WASHINGTON STATE DEPARTMENT OF REVENUE

Over Sharing

Economic innovation spurs ever new ways for businesses to deliver, and for consumers to access, goods and services. However, traditional modes of assessing and collecting sales tax may need some reconsidering in order to keep pace with disruptions from niches like these:

Ride Sharing

Services like Uber and Lyft book centrally via an app, but diffuse contract service providers are the final point of contact for purchasers of their services.

Meal Delivery

As with ride sharing, contractors are the main human point of contact for users of services like Grubhub and DoorDash, but they are delivering meals from a potentially limitless number of different restaurants.

Lending Libraries

The internet-enabled version of community resources like tool libraries can reduce overall purchases and may offer options like consignment rentals that complicate transactions.

Fashion Brokers

Overall purchase amounts can also decrease because of services like Rent the Runway, while companies like StitchFix—which hand-selects clothing and accessories for customers—anticipate large percentages of returned product, and thus reversed transactions.

R ECENTLY I WAS struggling to adapt to the latest changes made to "improve" my cable TV remote control. As I furiously pushed random buttons trying to find the right combination, I was surprised to hear myself saying, "Why'd they have to go and change this? It was perfectly fine the ... way ... it ... was."

It was then that I realized: yep, I'd officially reached full curmudgeon stage! Many people are familiar with this feeling, as technology has become intertwined with our daily routines in ways that none of us could have predicted even a few years ago. And it seems that the pace of technological change just increases as time goes on—change happens faster and faster.

Aside from affecting really important things—like how to find the channel showing the Hawks game!—technology has also changed the world of commerce. Business is constantly being conducted in new ways that challenge traditional means of regulating those transactions, including taxation.

It's hard to believe that the public internet as we know it has been around for less than 30 years. It was 1994 when a Seattle-based entrepreneur had the crazy idea to sell books online. Fast-forward 25 years (if you can find the right button on your remote!), and Amazon.com is now poised to become the largest retailer in the world.

This incredible growth in online sales may have been a boon to in-home shoppers, but it created a serious dent in state and local tax revenues due to the difficulty of collecting sales taxes from remote sellers. This was especially true in jurisdictions (like Washington) that are heavily dependent upon sales tax revenue.

Thankfully, modern jurisprudence finally caught up with the internet in 2018 with the US Supreme Court decision

in *Wayfair v. South Dakota*, which upheld the right of state and local jurisdictions to require remote sellers to collect sales taxes. Washington state further capitalized on this trend when it enacted one of the nation's first marketplace facilitator laws, requiring online marketplaces like Amazon or eBay to collect taxes for the millions of independent vendors selling through their online platforms. This approach greatly enhances the ability to enforce sales tax collection obligations and provides far greater efficiency.

As far-reaching as those changes were, and as novel as the tax collection solutions required to address them have been, online sales are only the tip of the technological iceberg confronting tax collectors. The omnipresent availability and power of technology have spawned new business models that constantly challenge tax administrators in new ways.

For example, you no longer need to run down to the local burger joint for a quick snack. There are several competitors eager to take your order electronically and find a local driver willing to pick up your food and deliver it to you. Companies like Grubhub, Uber Eats, and DoorDash are all fighting to become your default meal provider, with an almost unlimited choice of participating restaurants.

This type of service is only one example of the growing "gig" or "sharing" economy. Better-known examples include ride-sharing services like Uber and Lyft and home rental companies like Airbnb and HomeAway. All of these services typically use a central hub to process transactions, but they rely upon a loose-knit web of part-time, independent service providers to complete the transactions.

It doesn't appear that the sharing economy is going away any time soon, and its continued growth creates new challenges for tax collection.

For more information:
dor.wa.gov

■ First, similar to the predicament with online sales, the tax collection responsibilities are being divided among an ever-growing number of market participants, many of which are not terribly sophisticated or knowledgeable about their tax responsibilities.

■ Perhaps more important for jurisdictions dependent upon sales taxes as a revenue source, the sharing economy also reduces the need for individuals to purchase their own goods.

As an example of the second problem, imagine a service that matches home project enthusiasts with other individuals who offer their tools for rent. If a household project requires the use of a drill press, many individuals who formerly bought their own drill press will now rent one. Instead of 99 homeowners with 99 drill presses sitting in their garages unused for 11 months out of the year, you now have 9 homeowners who own drill presses that are rented to others for those 11 months. That is great for overall economic efficiency, but how does the government make up the sales tax revenue it just lost on the 90 drill presses that were never sold?

The obvious solution is that tax collectors have to ensure that sales tax is collected on the individual rentals. The problem is that this task is monumentally more difficult than traditional retail sales. In addition, statutes often reflect traditional business practices, so they may need to be updated to allow efficient collection of tax under such new circumstances.

In sum, our society has clearly become hooked on new technologies that constantly induce changes in business practices. We can either gripe about how "things were just fine the way they were," or we can get to work analyzing the new economy and adapting our tax systems and practices to accommodate the inevitable tide of change before it engulfs us. I choose to keep working to adapt—after all, I still want to catch that Seahawks game! ℂ

Gil Brewer *is the senior assistant director for tax policy for the Washington State Department of Revenue, where he has worked for more than 15 years in various positions.*

Cityscape
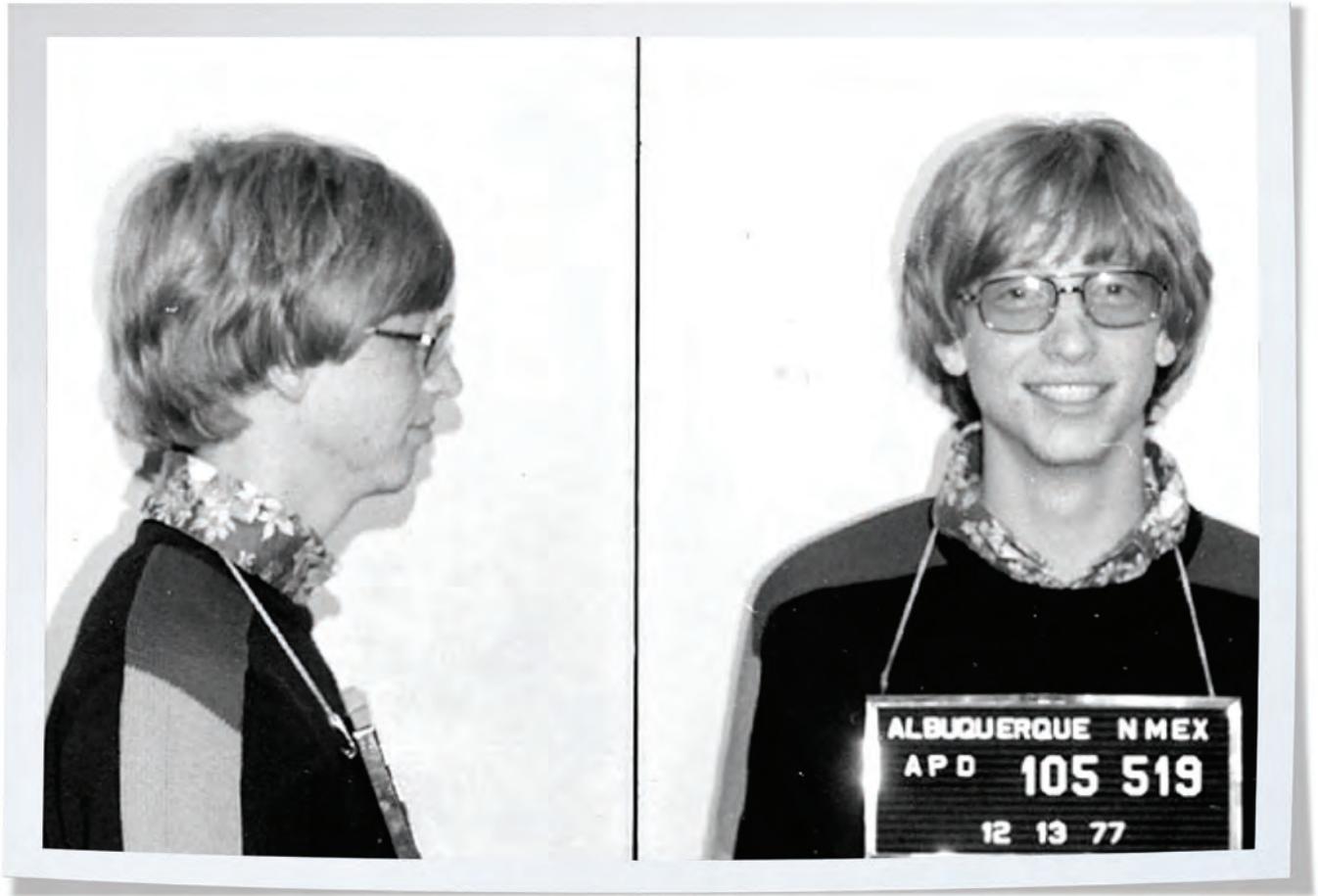
Civic Engineering

Tech disruptions—and disruptors—may come and go, but they can still help cities promote long-term community health.

FOR MOST PEOPLE, a police booking photo is hardly an occasion to smile about—but most people aren't Bill Gates. In the final month of 1977, when Gates was arrested in Albuquerque (allegedly for driving recklessly in his Porsche), the 22-year-old wunderkind from Seattle had just taken a second leave of absence from Harvard to establish Microsoft in New Mexico. A year later, with just 11 employees, Microsoft would post revenue of $1 million, then relocate to Bellevue in 1979 to develop software that would run the world's first personal computers.

Though now happily retired, Gates is still known for seeing things differently. When *MIT Technology Review* asked him to curate its annual list of 10 Breakthrough Technologies in February, he says his mind first turned to the plow, then to the meatless hamburger, because "the plow improves our *quantity* of life, and lab-grown meat improves our *quality* of life.... We've reached a point where we're tackling both ideas at once."

So what innovations does Gates envision over the next 20 years?

"I would hope to see technologies that center almost entirely on wellbeing," he writes in the introduction to his 2019 list. "I think the brilliant minds of the future will focus on more metaphysical questions: How do we make people happier? How do we create meaningful connections? How do we help everyone live a fulfilling life?"

In other words: the challenges that cities grapple with every day will drive the breakthroughs of tomorrow. **c**
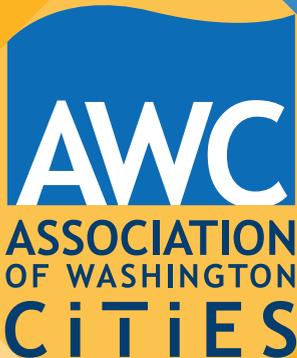
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