Meeting of the Minds

The Annual

Selected blog posts   *CityMinded.org*   *Volume 2*

Rethinking Waste in Detroit

Eight Smart City Projects That Can Pay Back Quickly

Ending the Professional vs. Citizen Divide

Letter from the Editor

As I reflect back on the past year of contributions to the CityMinded.org blog by our, now, 130+ authors, I sense a shift in the tone of our urban conversation. Due in no small part to Super Storm Sandy in 2012 and other undeniable evidence of "global weirding," the popular and political opinion in the US has finally moved from climate change *mitigation* (or, at its worst, *denial*) to *urban resilience* and *climate adaptation*. The world is, indeed, changing, but it's not just that people are moving to cities—it's also that cities are facing up to challenges that require a new breed of citizen, a fresh approach from civic professionals, and an upgraded suite of technological tools to support both of them.

This shift is, I think, a positive one, and it's been with us long enough now to bear fruit. Many new initiatives, reports and stories from the last 12 months have appeared on our blog—often told in the personal narratives of the thought leaders who initiated them. The following pages give you a view into that body of work. I hope you enjoy.

Best,

Dave Hahn
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Spotlighting innovations in
urban sustainability & connected technology

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Rethinking the Idea of Waste in Detroit

By Andrew Mangan

U.S. businesses, entrepreneurs and municipalities are rethinking the concept of "waste" to create competitive advantage beyond the market and pave the way toward a circular economy and a landfill-free future. While this is a national trend, you can find these activities happening right here in Detroit.

Introducing the Reuse Opportunity Collaboratory (ROC) Detroit

ROC Detroit is a groundbreaking new effort led by General Motors, Fairmount Minerals, CXCatalysts, Pure Michigan Business Connect, The Detroit Economic Growth Corporation, and the U.S. Business Council for Sustainable Development (US BCSD) to bring together Detroit industries, small and medium sized businesses, and entrepreneurs to create closed-loop systems in which one company's waste becomes another company's raw material.

The program leverages the US BCSD's collaborative By-Product Synergy methodology—which has been deployed around the world to help businesses reuse materials to their fullest potential—and match it with Detroit's creative, entrepreneurial spirit to bring positive economic growth and social impact to the city.

How It Works

Core to the project is an ongoing facilitated process that helps companies understand each other's material flows and see opportunities, stimulating colla-

Andrew Mangan is co-founder and executive director of the United States Business Council for Sustainable Development (US BCSD), a non-profit association of businesses launched in 2002 whose purpose is to create and deliver value driven sustainable development projects in the United States. Projects are member-led and designed to create value through economic returns and environmental and social benefits.

borative, innovative and business-friendly solutions. To foster strong communication and efficient implementation of material reuse opportunities, an online marketplace will be made available to all participants. Materials wanted and available can be posted, trade barriers addressed and transactions facilitated. The marketplace is confidential and secure and provides a neutral ground to stimulate the creation of innovative waste diversion solutions.

The US BCSD will support match

identification by leveraging best practices from our extensive case study library, national network of material reuse projects, technical partners, the Yale Center for Industrial Ecology, the Ohio State University's Center for Resilience and engineering expertise from the participating companies.

Detroit Is Synonymous With Creativity and Innovation

Social entrepreneurs and do-gooders are reshaping the Detroit landscape, and we want to connect them to as many undervalued resources as possible. Let's look at Veronika Scott as an example. Veronika is the founder and CEO of The Empowerment Plan, a Detroit-based nonprofit organization dedicated to serving the homeless community. As part of its mission, the team hires homeless women from local shelters and train them to become full-time seamstresses. These women then manufacture a coat that transforms into a sleeping bag, which is then given out to homeless individuals living on the streets at no cost.

Insulation is one of the largest expense in the coats' production, but there was a practical, durable and sustainable solution just around the corner. With the help and recommendations from General Motors, Veronika has been able to use a repurposed scrap sound absorbing material leftover from production of Chevrolet Malibu and Buick Verano sedans as an insulation. This collaborative reuse opportunity created a win-win-win for everyone involved.

Veronika is a fascinating example of the impacts that can be created though rethinking underutilized materials. Imagine hundreds of groups and individuals thinking the same way and you'll begin to see the full picture of what we're building with this project.

Good for the community, good for the environment, but also good for business.

General Motors thinks of waste as a resource out of place. This underlying philosophy has led to:

- 111 landfill-free facilities worldwide — more than any other automaker.

- Recycling or reusing 84% of its worldwide manufacturing waste.

- Recycling 2.2 million tons of waste in 2013.

- Vehicles that are, on average, 85% recyclable by weight at the end of their useful life.

When waste can't be fully designed out of a process, businesses can think of waste streams as revenue streams. In the last few years, GM has generated about $1 billion annually through various by-product reuse and recycling activities. When GM started its landfill-free program in the United States, it invested about $10 for every ton of waste reduced. Over time, it has reduced program costs 92 percent and total waste by 62 percent. Leveraging GM's leadership in the project, we're hoping to bring similar results to other businesses operating in the Detroit region.

Call To Action

The success of ROC-Detroit depends on a diverse and tight-knit network of companies large and small, linking with academia, nonprofit institutions and government agencies who together will create beneficial economic, societal and economic opportunities from Detroit's underutilized materials. We want you involved. For more information, contact Tess Mateo, at tmateo@cxcatalysts.com. ■

Rethinking Engagement in Cities

Ending the Professional vs. Citizen Divide

By Blair A. Ruble

Cities are among humankind's grandest and most complex creations. Even small urban communities represent the cumulative result of literally hundreds of thousands of public and private, individual and collective decisions over time. They are the playgrounds of spontaneity.

Such an understanding of how cities come into being and evolve is hardly new. Nor are its implications for how we plan and govern cities. While the language has changed, these ideas — and how those with custodianship for urban life approach their responsibilities — have been around for nearly as long as there have been cities. We can look to Ancient Greek political thought for notions about participation and empowerment that have been dressed up for our own times.

We need not look back so far. Anyone who has thought seriously about the contemporary urban condition, for example, has encountered the writings of Jane Jacobs. The specific insights of the ancients and the contemporary deserve serious engagement, criticism and debate. The importance of community engagement and mobilization, one might have thought, has become indisputable over several centuries of reformulation.

Since the financial crisis of 2008, a plentiful number of urban professionals around the world—including economists, planners, architects, and administrators of all types—have dismissed citizen participation as an extravagant expense that only gets in the way of efficient urban management. They reveal a steady re-entrenchment of top-down approaches to shaping the city in which professionals know best. Involving citizens, it seems, just costs too much.

Ironically, the lessons in recent years that have emerged from post-disaster experiences point in precisely the opposite direction. From Hurricane Katrina to Super Storm Sandy and all variety of man-made and natural disasters across the globe, we have seen integrated communities with high social capital and identity recover more quickly and more efficiently than those which are bedeviled by high levels of social anomie and isolation.

How can we explain this division between empirical lessons learned on the ground and the view from the commanding heights of professionalism?

There are multiple answers to such a complex question. Citizen engagement has often been oversold by its advocates who have failed to overcome challenges such as time, expense and passivity. Moreover, professional knowledge is essential to resolving many technical challenges.

Arguments against citizen engagement as being overly expensive and obtrusive ring ever more hollow at a time when smart technologies make information sharing and citizen participation ever more feasible and inexpensive. We know from the work of Tim Campbell's *Beyond Smart Cities,* for example, that cities learn from each other through transnational networks rather than from top-down professional pontificators. Urban professionals who view themselves as the high priests and priestesses of city life must confront the realities of a digital age that is converting hierarchies into networks in every aspect of our lives.

Blair Ruble is Director of the Woodrow Wilson Center's Program on Global Sustainability and Resilience which includes its Comparative Urban Studies Program. His most recent book, Washington's U Street: A Biography, *examines the challenges of gentrification in Washington, D.C.*

Within this context, traditional urban "think tanks" need a new approach to their work. Specialized knowledge and expertise play an important role to be sure; but there is simultaneously a need to make that knowledge and expertise widely available. Communities must organize themselves if they are to be resilient in the face of unprecedented challenges for cities which certainly lie ahead as our planet changes.

Fortunately, models exist for converting traditionally hierarchical academic, professional, and municipal institutions into urban laboratories embedded in broad networks of public officials, business executives, entrepreneurs, civic leaders and citizens. The University of Toronto's Global Cities Indicator pro-

ject, for example, mobilizes the considerable expertise necessary to collect and analyze big data about cities around the world while making such data available and transparent to broader communities. Similarly, Brooklyn's new Center for Urban Science + Progress seeks to promote "a new kind of academic center that functions in collaboration with the city itself."

Conferences such as Meetings of the Minds amplify the benefits of engaging urbanites and urban custodians from across many sectors. There are countless more examples of governance mechanisms and political arrangements which privilege participation over professional privilege.

As the world rushes towards an

unprecedented urban age — as humans become a city rather than a rural species—we need new sorts of institutions—virtual and horizontal networks of minds rather than confined "tanks" for the best and the brightest—if we are going to sustain resilient urban communities. We need engagement and we need modesty if we, as denizens of cities great and small, are going to survive. We need to end the artificial divide between "professionals" and "citizens" once and for all. Fortunately, technologies that are now available allow the dreams of ancient philosophers who advocated direct involvement in decision-making for the cities to be realized. ■

Innovation Districts Take Off

Building the New Relationship Infrastructure

By Brooks Rainwater

Brooks Rainwater is the Director of the City Solutions and Applied Research Center at the National League of Cities. The Center strengthens the capacity of municipal leaders to create strong local economies, safe and vibrant neighborhoods, world-class infrastructure, and a sustainable environment. As a strong advocate for vibrant and successful cities, Brooks frequently speaks and writes on the subject, and has published numerous research reports and articles on the creation of innovative, sustainable, and livable communities. Follow Brooks on Twitter @BrooksRainwater.

Cities incubate creativity and serve as labs for innovative ideas and policies. One such idea arising more and more is the innovation district. These districts are creative, energy-laden ecosystems with a focus on building partnerships across sectors. Innovation districts attract entrepreneurs, established companies, and leaders in all walks of life, and provide them with the space to create unexpected relationships and find transformative solutions.

Innovation district growth in cities as far afield as Boston, Las Vegas, and Barcelona belies their success in reflecting our ever-more complex world, which demands increased collaboration to understand the latest trends, let alone address problems with solutions that are more and more frequently found at the boundaries between different fields. In short, Innovation Districts are places designed to bridge gaps between fields and make unusual collaboration more likely to happen.

Bruce Katz, Vice President of the Brookings Metropolitan Center has been exploring the growth of these districts and the increasing impact they are having on wider metropolitan economies: "This new model — the Innovation District — clusters leading-edge anchor institutions and cutting-edge innovative firms, connecting them with supporting and spin-off companies, business incubators, mixed-use housing, office, retail and 21st century urban amenities."

In the American Institute of Architects report I co-authored while with the AIA, *Cities as a Lab: Designing the Innovation Economy*, we examined the key role that innovation districts are beginning to play in cities. Design, ideas, and proximity are being used as significant assets in turning our cities into "innovation labs," transforming spaces and fostering connections in imaginative new ways. These high performance districts can animate a brighter future

and attract funding and investment, enterprises and entrepreneurs, all while serving as a platform for rapid change.

A key example of this can be seen in Boston. Boston's Innovation District demonstrates what can happen with strong civic leadership, long-range planning, and pioneering designers collaborating toward a shared vision. The once derelict wharves along the Boston waterfront have been transformed into a multidisciplinary hub for innovation and manufacturing, attracting 200 companies and over 4,000 jobs.

Boston's former Mayor Thomas Menino launched the Boston Innovation District (I/D) with his 2010 inaugural address, and captured the impetus for its creation when he said, "Our mandate to all will be to invent a 21st Century district that meets the needs of the innovators who live and work in Boston—to create a job magnet, an urban lab on our shore, and to harvest its lessons for the city."

Now here we are in 2014, and his vision is transforming 1,000 acres of the South Boston waterfront into a unique live-work-play innovation community. Over ten million square feet of space has already been developed in the district, with 20 million more square feet planned.

Having first written about this project back in late 2012 it is astounding to see how it has taken off to the point where the ongoing success of the I/D is now leading to rapidly increasing rents that are pushing some of the early companies out. Rents have soared to near parity with the Back Bay, the most expensive office district in Boston, rising 43% in just a few short years.

Within this district a new innovation infrastructure has been created, which includes numerous accelerators and co-working facilities, new types of housing, and America's first public innovation center in a connected urban community, District Hall. This recently opened

12,000-square-foot, experimental community hub supports events, exhibitions, and meetings that have no niche elsewhere in the innovation market.

Among the companies that have located in the Innovation District, 40% share offices in co-working spaces and incubators, 25% have 10 employees or less, and 11% are in the education and non-profit sectors. Of the jobs created, 30% of the recent expansion comes from technology companies, 21% are in creative industries like advertising and design, and 16% come from green technology and life sciences.

Translating best practices from cities like Boston to other places throughout the country is imperative. The Michigan Municipal League is doing just this by examining the importance of innovation districts as targeted hyper-local place-making. Looking at districts in Pittsburgh, Boston, Portland, Toronto, and Barcelona they have identified key best practices that successful districts consistently demonstrate.

There must be a catalyst, generally in the form of a mayor or other local champion, like former Mayor Menino in Boston. The inclusion of entrepreneurs as well as strong partnerships with universities and the philanthropic community are paramount. Infrastructure development, public investment, and distinct financing tools, as well as housing options and open space round out the key features that help define innovation district success.

Through incubating ideas, working collaboratively across sectors, and thinking beyond physical boundaries, innovation districts are thriving and creating ongoing opportunities for cities. By no means is it an easy process, but these districts help pave the way for future experimentation in cities across the country by creating the eco-systems that attract talent and help our cities thrive. ■

To Find Big Opportunities in Smart Cities, Go Small

By Brian Cotton

Brian Cotton is a vice president at Frost & Sullivan, where he leads the firm's global Growth Consulting practice in the IT and telecoms vertical. His involvement in smart cities started in 2006 and he's been advising public sector, IT, energy and security clients on the topic ever since.

The smart city is a global phenomenon driven by a confluence of rapid urbanization, aging infrastructure, and advances in information technology, which are all super-charged by the imperatives of the ever increasing need for government austerity. Globally, it is a trillion dollar market with multi-billion dollar companies supplying multi-million dollar solutions to cities with swelling populations and shrinking budgets. The good news for the industry is there are a lot of cities in this situation, all needing better, smarter solutions. By 2025, there may well be more than 100 cities around the world that are fully "smart," or on the road to becoming that way.

Most competitors in this space understandably target the low-hanging fruit of the biggest cities with the biggest budgets. But these big sales are often complex transactions of complex solutions. Typically, smart city solutions are designed according to a systems-of-systems approach (represented in the figure on page 13). All the layers of the domains of a city—transportation, energy, public safety and security, buildings, healthcare, education and social services, water and waste—are meticulously analyzed and teased apart only

to be stitched back together again into new solutions that are scalable, efficient, functionally optimized, future-proof and, most of all, cost-effective.

Whenever we are dealing with the public purse, implementing these large-scale projects can pose a host of challenges technically, financially and politically.

Yet with most of the focus on the large and medium sized cities, the beauty of small is most often overlooked. I believe there is also a wealth of opportunity in applying smart city solutions to smaller metropolitan centers. There are a 100 obviously big city centers, but there are thousands of not-so-obvious small cities.

The Advantages of Small

Rather than being a disadvantage in the smart city world, small areas have numerous advantages when it comes to planning, implementing and operating smart city infrastructure and service projects.

- **More social cohesion and sense of local identity.** Large metropolitan areas are literally an amalgamation of diverse populations with someti-mes conflicting priorities. Social cohesion and feelings of being more connected to the community can be stronger in local communities than in larger cities. There is evidence that citizens of small communities develop a strong common identity and will act to support community goals, which could make developing, approving and funding smart city programs easier.

- **Remoteness from the center leads to need for greater access.** As a number of small areas are distant from large urban centers, many of these populations suffer from lack of access to critical services that are readily enjoyed by their big city counterparts, such as advanced medicine or world-class education. To empower citizens and businesses in these small areas, there is strong need to bring these services to remote areas.

- **Potential for easier planning, approval, and funding decisions.** Decision making is often far less complex and faster in smaller, simpler administrative structures than in cities with large, siloed bureaucracies.

- **Stronger need to outsource extended capabilities.** Small areas are more likely to have fewer internal technical capabilities and financing tools available to them. This implies a greater need to outsource social infrastructure projects to third parties. Similarly, they may be more inclined to embrace public-private-partnerships (3P models) to implement and operate smart city programs. In fiscally austere times, this can be a significant market driver.

In small communities, systems aren't as big and all encompassing as they are in larger cities. Moreover, a stronger

MOBILITY AND TRANSPORTATION
• Low-emission Mobility
• Integrated Mobility Solutions
• Multimodal Transport

ENERGY
• Smart Grids
• Smart Meters
• Intelligent Energy Storage

PUBLIC SAFETY AND SECURITY
• Surveillance
• Biometrics
• Simulation modelling and crime prediction
• C2 and response

BUILDINGS
• Building Automation
• Intelligent Buildings: Advanced HVAC, Lighting Equipment

ADMINISTRATION, EDUCATION AND SOCIAL SERVICES
• e-Government
• e-Education
• e-Social Services

HEALTHCARE
• ehealth and mhealth systems
• Intelligent and connected medical devices

WATER AND WASTE
• Smart Meters
• Digital Water and Waste Management

sense of community identity can also help align citizens around smart city solutions. This suggests that small areas may likely adopt smart city solutions faster than their large city counterparts. With strong community engagement in the designing and building of new solutions, post-implementation, and the rate of adoption, satisfaction and, ultimately, success may also be higher than in larger cities.

There is currently very little written about "small, smart city" opportunities. However, a paradigm can be developed that enables us to measure these opportunities, organize our thinking and create strategies to implement small smart city solutions. For instance, consider the following three types of small urban areas.

Micropolitan Statistical Areas

Micropolitan statistical areas, or "micros," were created as a new census category by the U.S. Office of Management and Budget (OMB) in 2003. Broadly defined, they are catchment areas based around a central urban cluster of 10,000 to 49,999 with a substantial dispersed population surrounding them. Those living outside of the central cluster commute into it for jobs, shopping, medical appointments, schools, etc.

A seminal paper by Robert E. Lang and Dawn Dhavale in 2004 outlined the characteristics typical of these areas in the U.S.:

• Micros tend to be between 1.5 and 2 hours driving distance—each way—from big cities (and big city services), with some being more than 9 hours away

• In the Eastern U.S., micros tend to be lower density fillers between larger cities, whereas in the west, they tend to be stand-alone economic centers surrounded by rural spaces

• Micros can range in population from 13,000 (2000 census figures) to just under 190,000, but the smallest of them tend to be very remote from big cities and some are steadily losing population

Although this is a description of typical micros in the United States, micropolitan areas with varying qualitative and quantitative characteristics exist all across the planet in the thousands. This makes for a very large opportunity. There are approximately 570 micros in the U.S. and 160 in Canada. However, population profiles in other regions of the world suggest the potential is exponentially larger in even more populous regions such as China, Europe, India, South America and Africa.

Neighborhoods: Building Pockets of Smart

Another type of small urban area is the neighborhood. Neighborhoods typically have a unique character and distinct identity that defines them from other parts of the city. Many have active citizen groups dedicated to supporting and improving the welfare of their residents, businesses and visitors.

The opportunity here is to look at building smart communities at the neighborhood level. Compared to designing an "all-things-to-all-people" solution for an entire large city, a smart neighborhood can work at a molecular level, involving targeted capabilities and then connecting them with other smart neighborhoods. The unique composition of a neighborhood, and even groups of buildings within it, could implement better neighborhood safety with smart information sharing, or build microgrids to enable energy self-sufficiency at the neighborhood level.

These smart neighborhoods could subsequently connect with backbone city infrastructure, such as transportation or energy grids. They could also connect with adjacent smart neighborhoods or specialized, complementary districts (e.g., education and medical, "eds and meds") to enhance the "smartness" in both areas.

The sheer number of neighborhoods in cities around the world—and there are at least 4,400 cities with populations of more than 150,000 by one count—suggests a possible market for smart neighborhoods in the tens of thousands. This further adds to the potential for smart in small.

Academic Campuses

Still another type of small, smart opportunity is the academic campus. Ranging from large, land-grant univer-sities to liberal arts colleges, many campuses are essentially cities unto themselves. They often have dedicated physical plants, police forces, transportation systems, and administrations, functioning in many ways like a small city. And, in many of these campuses, smart city solutions may find an ideal environment for adoption and innovation. Approximately 7,500 universities globally (according to Greentech Media, Inc.) represent a sizeable segment to pursue.

The Big Opportunities for Small

Improving infrastructure and services in small urban areas and remote communities may no longer be a nice-to-have, as evidence suggests they are becoming a need-to-have. In many nations, small towns are opting to dissolve and amalgamate with larger entities to form stronger micropolitan areas. Springhill, Nova Scotia, a small Canadian town of 4,000 recently did just this. As the town's mayor stated, "this is going to be a trend within the next three, four, five years. You're going to see a lot of amalgamation… small towns just can't survive anymore." (Listen to the full interview here.) Consolidation, increasing efficiency, extending capabilities and boosting socio-economic attractors of a region are becoming critical to the survival of many of these smaller communities.

Targeting micros, neighborhoods, and university campuses with smart solutions can be a promising new horizon in smart cities. With fewer barriers to implementation coupled with the sheer size of the potential market, smaller projects can represent an attractive option for solution developers, city administrations and citizens alike. Ultimately, the success of a smart city isn't in the technology, but in the concrete differences it makes in the lives of its citizens. "Small" can be big—we only need the right lens to see it. ■

From Digital Divide to Digital Equity

By Anne Schwieger

March 12, 2014, marked the 25th anniversary of the creation of the World Wide Web by Sir Tim Berners Lee. The web has enabled people around the globe to innovate in ways previously unimagined, collaborate with ease across oceans, and spur revolution. Imagine explaining the history and wonders of the web to someone who has never heard of it. Your narrative might include the early days of dial up, receiving AOL compact discs in the mail, the sudden ubiquity of email in school and the workplace, the rise and fall of Napster, applying for jobs online, no longer reading the newspaper on paper, social media, and working in the cloud.

Thoroughly impressed, and at this point also looking to the sky in search of the cloud you are working in, your WWW novitiate might then ask if everyone can access the web. How would you explain that in one of the richest nations on earth, home to global centers of innovation, commerce, media, and higher learning that the answer to this question depends upon a person's location, age, race, income, education level, and what kind of access they are willing to settle for?

Significant progress has been made in addressing the digital divide since the phenomena was introduced to the nation by President Bill Clinton in his 2000 State of the Union Address. In 1997, just 18% of US households had access to the Internet. The most recent data from the Pew Research Center's Internet & American Life Project indicates that 76% of Americans 18 and over now use the Internet at home. The vast majority of these home Internet users have adopted high-speed home broadband, the technology that makes full online engagement possible (92% based on 70% of home Internet users being broadband adopters). In fact, the Census Bureau's 2011 Current Population Survey reveals that 98% of households are located in areas that have access to broadband. For reasons ranging from affordability of home subscriptions to views about the utility of broadband in the home, an astounding one hundred million Americans have yet to adopt this technology.

A mapping project by the Open Technology Institute highlighted in *Atlantic Cities* (February, 2014) paints a rather bleak picture of home broadband adoption in several major American cities. The maps show census tracts in most of the cities, more often than not in low-income neighborhoods, where adoption of home broadband sits at 0-20%. Frequently abutting these pockets of incredibly low adoption are census tracts where adoption appears to be in better shape but still lags behind the nationwide adoption level of 70%. These are the same urban geographies that are the focus of concerted effort by residents, schools, institutes of higher education, non-profit organizations, and levels of government from municipal to federal to improve educational outcomes, create on-ramps to 21st century career tracks, and promote health and wellness. Imagine setting your sights on a goal in one of these domains only to be told that in order to move forward, you will need to depend on your smartphone and whatever other Internet access you manage to come across. Millions of low-income youth and adults whose budgets cannot absorb the expense of home broadband are being asked to do just that.

The digital divide might now be better understood as a murky digital chasm full of rapidly evolving state and federal laws governing the telecommunications industry, mega mergers, and pressing concerns about the end of "net neutrality". Those incurring the greatest cost while all of this plays out are the 100 million people working hard to make due with sub optimal access via mobile devices, 3 hour waits for 30 minute slots at public libraries, and free WiFi at McDonald's and coffee shops. Limited, second tier access must no longer hinder their educational, professional, health, and civic ambitions. To achieve equity in access to resources and opportunities, we must move past the digital divide and problem solve in new ways to achieve digital equity.

With that said, we need a coherent strategy to integrate home broadband adoption efforts into the facets of city planning and urban policy that focus on creating neighborhoods, cities, and metro areas of opportunity for all people. This will require that cities aggressively pursue adoption among low-income households in the near term while simultaneously digging into the long game of securing access to the future-proof fiber optic infrastructure they need to compete in the 21st century global innovation economy.

While some cities have fully embraced the short-term challenge of connecting all residents to affordable high-speed broadband in the home, far more remain on the sidelines. Those who are ready to make this a major priority could learn a great deal from cities whose work is already in motion. Some partner with telecommunications companies to increase enrollment in subsidized home broadband subscriptions. Where affordable options are lacking or nonexistent, citizens have increasingly taken matters into their own hands and built mesh networks to serve their neighborhoods. Some cities have gathered up the financial and political capital to offer Fiber to the Home (FTTH), either by building their own fiber optic networks or developing creative strategies to activate existing infrastructure. We stand to learn a great deal from these and other cases about how the unique collection of assets, interests, and needs spanning

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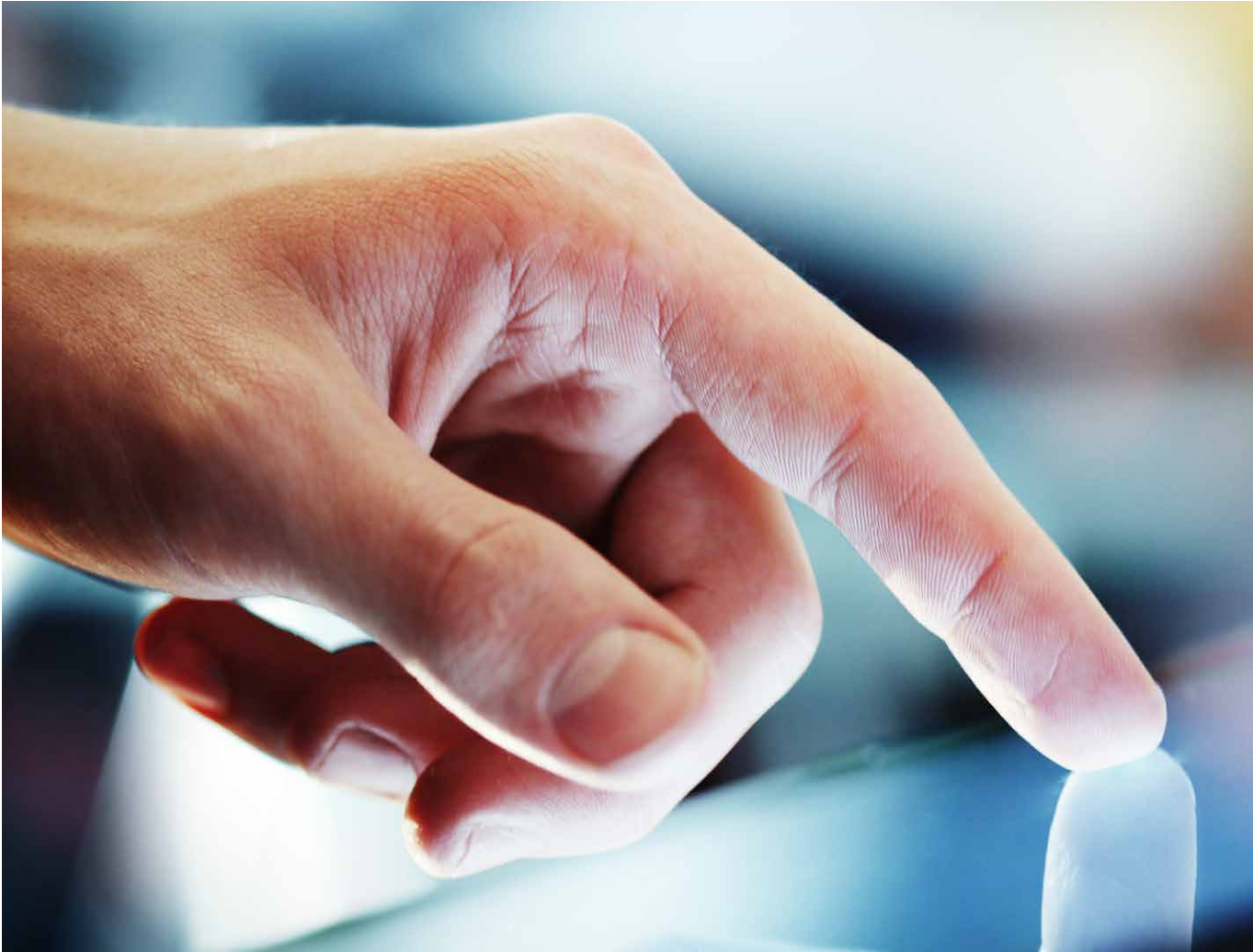
a city's neighborhoods and institutions can advance home broadband adoption.

Carefully crafted partnerships with broadband service providers and the installation of neighborhood based mesh networks may be the most direct short-term path to increasing home broadband adoption in many cities. However, when thinking through what American cities need to compete on the world stage and afford all residents every opportunity possible now and in the years to come, it is becoming increasin-

gly apparent that fiber optic infrastructure is the best bet. An investment of between $50-$90 billion (80% of which would be spent on labor, and thus invested directly in jobs within the local community) would connect most households in America and support high-speed Internet needs for the next 40-50 years. Several recent announcements, one from Google and another from the Federal Communications Commission suggest that a fiber future is gaining momentum nationwide.

Ultimately, the path to digital equity

will require the development of robust economic models that maximize the short- and long-term human outcomes of home broadband adoption. These models will enable us to better understand how increasing home broadband adoption can act as an economic multiplier on local, state, and federal investments that aim to make the ecology of the city one of opportunity for all people. In so doing, cities will ensure that all Americans can thrive as citizens of the 21st century. ■

Why a Single Payment System for Multi-Modal Journeys Could Transform Urban Transit

By Hany Fam and James Murphy

Hany Fam is President of MasterCard Enterprise Partnerships, a division of MasterCard responsible for the development of enterprise solutions for large eco-systems such as telecommunications, urban transit, corporate travel, retail and B2B payments.

James Murphy is Editorial Director of the Future Foundation, a global consumer trends and insight firm. His articles have appeared in numerous U.K. publications and he has appeared as a commentator on the BBC's 'Today Programme', 'Start the Week' and 'Newsnight'.

We love cities because they act as creative magnets, bringing work, culture and entertainment opportunities together to create rich, vibrant menus. But crowding and congestion is taking its toll and far too often city travel is both complicated and frustrating.

The way we pay for travel is at the heart of much of this frustration. Reforming transit payment systems is key to encouraging increased use of public transport networks and creating sustainable cities. MasterCard commissioned the Future Foundation to research the views of a range of global transport commentators (and everyday citizens) on this critical topic. Here's what we found…

The Dangers of Complexity

City authorities want to make multi-modal journeys—i.e. ones where you might first take a bus, then hop on a train and finally switch to a shared bike—as effortless as possible. Many, however, maintain separate payment systems for each mode of transport, which adds time and stress to a single journey.

This can have a considerable negative impact on travelers. The Future Foundation's report found that, for travelers, the fear of missing a connection was the most frequently cited cause of anxiety. UCLA urban planning expert Professor Martin Wachs explains: "We psychologically weight the time we spend [changing transport modes] two or three times as heavily as we weight moving time."

The benefits of a single payment system can therefore be profound. It can improve travelers' confidence dramatically, leading to more people using public transport. When combined with flexible pricing to spread passenger loads through the day, it also provides a means to manage increasing demand, culminating in less crowding in ticket halls, faster boarding and more services running on time.

A Lack of Compatibility

Plenty of cities have experienced real improvements to their networks by implementing this kind of single payment system—Hong Kong, for example, has its 'Octopus' system while London has 'Oyster'. But if we take a global view, we see that almost every city has its own way for people to pay for public transport; some use cash, tokens or one-time tickets, while others use multi-use swipe or contactless smartcards. In Europe alone there are over 100 national or city transport smartcard programs and very few—if any—are compatible.

While the benefits of each system are felt by residents, they are typically viewed as strange, unfamiliar things to visitors. With the World Tourism Organization predicting that international arrivals will increase by nearly a billion between 1995 and 2020, cities will ultimately bear the adverse effects of this lack of compatibility:

- **Visitors find public transport so baffling that they give up completely and stick to taxis.** This drives traffic congestion, which is a material contributor to lost business efficiency and a significant source of air pollution.

- **There is potential loss to the local economy.** Visitors who could have made additional stops to eat and shop locally within the city during their stay are deterred from doing so by the 'hassle factor'.

- **For the journeys that visitors do make, the city bears the costs.** This takes the form of educating visitors
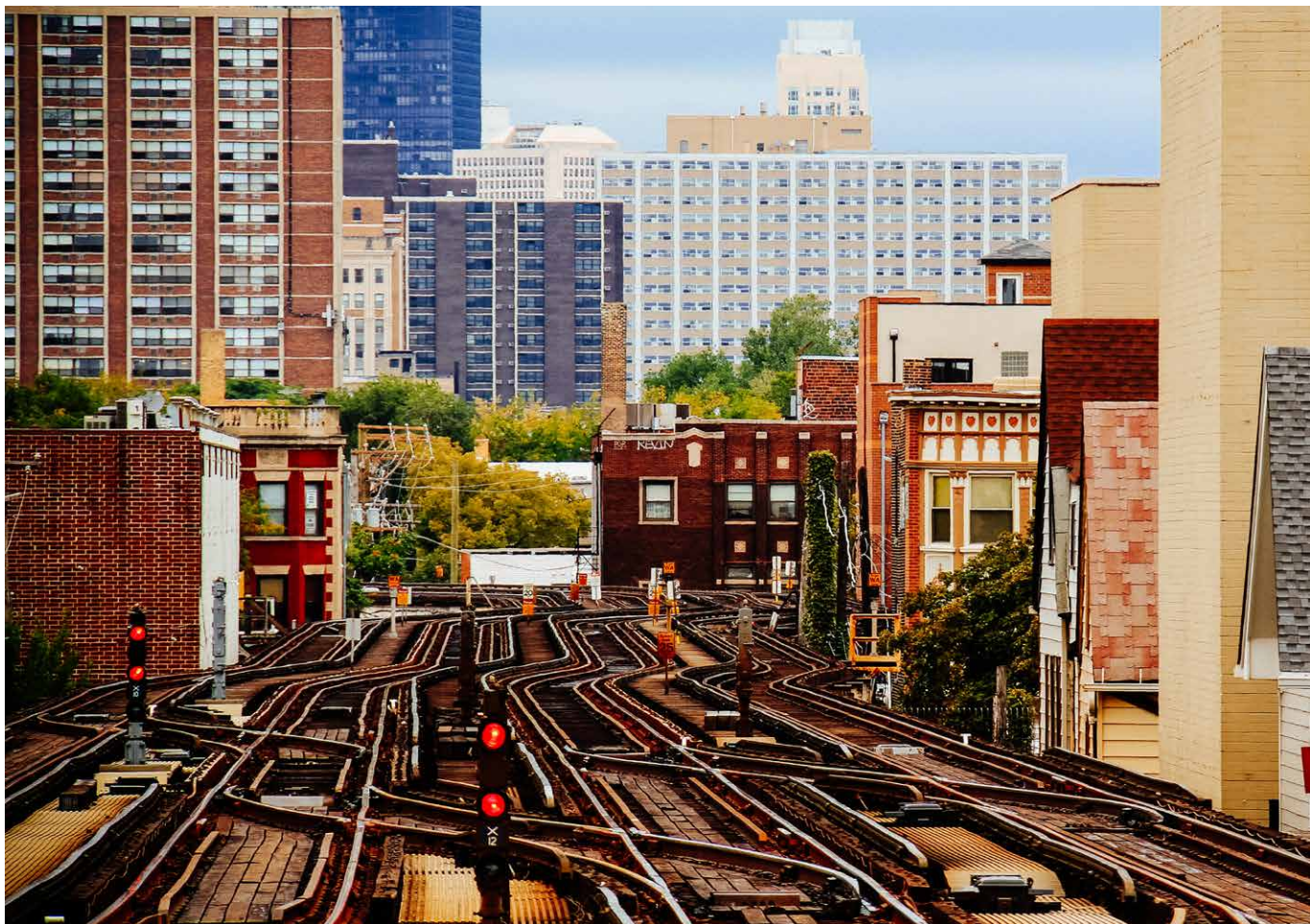
as to how the transport system works, providing them with retailing facilities, and resolving issues such as lost cards and failed transactions.

Technology as a Unifier

A significant opportunity exists to link these disparate urban transport networks to a global framework. Over the past decade there has been a convergence of the ticketing and payments industries. Chicago, for example, has already implemented the use of 'contactless' general purpose payment cards across its whole transport system, while London has introduced it on its 8,500 buses.

This sort of integration gives visitors confidence that they can pay fares with the card that they brought with them from home. In the first nine months of contactless payment card acceptance on London's buses, for example, MasterCard processed transactions from cards issued in more than 35 countries. Reduced complexity in the system and increased traveler confidence

ultimately means more business being done in the city.

Smartphone development adds a further layer to payment integration, offering travelers a navigation device as well as a means of universal payment. The public clearly recognizes the smartphone's potential, with over half (55%) of the Future Foundation's international research sample displaying an interest in using one as a means of accessing public transport. This includes over a third (36%) of leisure travelers in the U.S., two-fifths (43%) in the U.K., three-fifths (58%) in Brazil, and two-thirds (64%) in South Korea.

Significantly, a majority of current smartphone users—particularly in emerging markets—would consider using their phone to pay for services in the future. Over three-quarters (76%) of South Korean citizens would consider this, but agreement levels are even higher among urban Chinese (81%) and urban Indians (79%), with Brazil (67%), Argentina (66%) and Australia (51%) following behind. This willingness to embrace technology offers huge

potential for city transit operators in these markets.

Collaboration to a Brighter Future

Whether channeled through universally accepted payment cards or smartphones, the consolidation of travel payments promises significant benefits, both to consumers and cities. It relies, however, on collaboration between disparate groups that are inherently 'local' in nature. Transit operators need to stop viewing 'not invented here' as a bad thing and should look outside their own borders to share data and support innovation in this space with peers, as well as with global transit and payment industry leaders. Unfortunately, this isn't currently happening at scale.

While there is evidently much more to the city experience than payment systems, the importance of how we access travel services should not be underestimated. If city transit operators can embrace smarter solutions on a global scale, the results could be transformative. ■

Quick Wins

Eight Smart City Projects That Can Pay Back Quickly

By Jesse Berst

At the Smart Cities Council, we believe strongly that technology should be in service to a city's larger vision. Thus, we recommend that any smart city roadmap start with those larger goals in mind.

Once that's out of the way, however, most smart city practitioners urge cities to seek out quick wins — projects that have a big return for a relatively small investment in money and time. If a city starts with "low-hanging fruit" projects, it can build momentum and public support. It can also help pay for future projects with savings from the early ones.

Although every city is different, here are eight areas that have proved to be excellent places to look for quick payback. By the way, payback isn't always financial. Sometimes it comes in other forms, such as popularity rankings, business startups or civic enthusiasm.

1. Smart Transportation

Most citizens put traffic at the top of the list of things they want solved. According to some studies, congestion reduces a city's gross domestic product by somewhere between 1-3%. Smart transportation may not result in fare decreases. But it almost always rewards citizens with lower congestion and shorter travel times.

2. Energy Efficiency

Energy efficiency programs can get underway without large expenditures. Many gains are possible through simple behavior changes—for instance, learning ways to save water, substituting more efficient light bulbs or learning to postpone non-essential electric use to non-peak times. What's more, many energy services contractors will undertake work for no upfront costs. Instead,
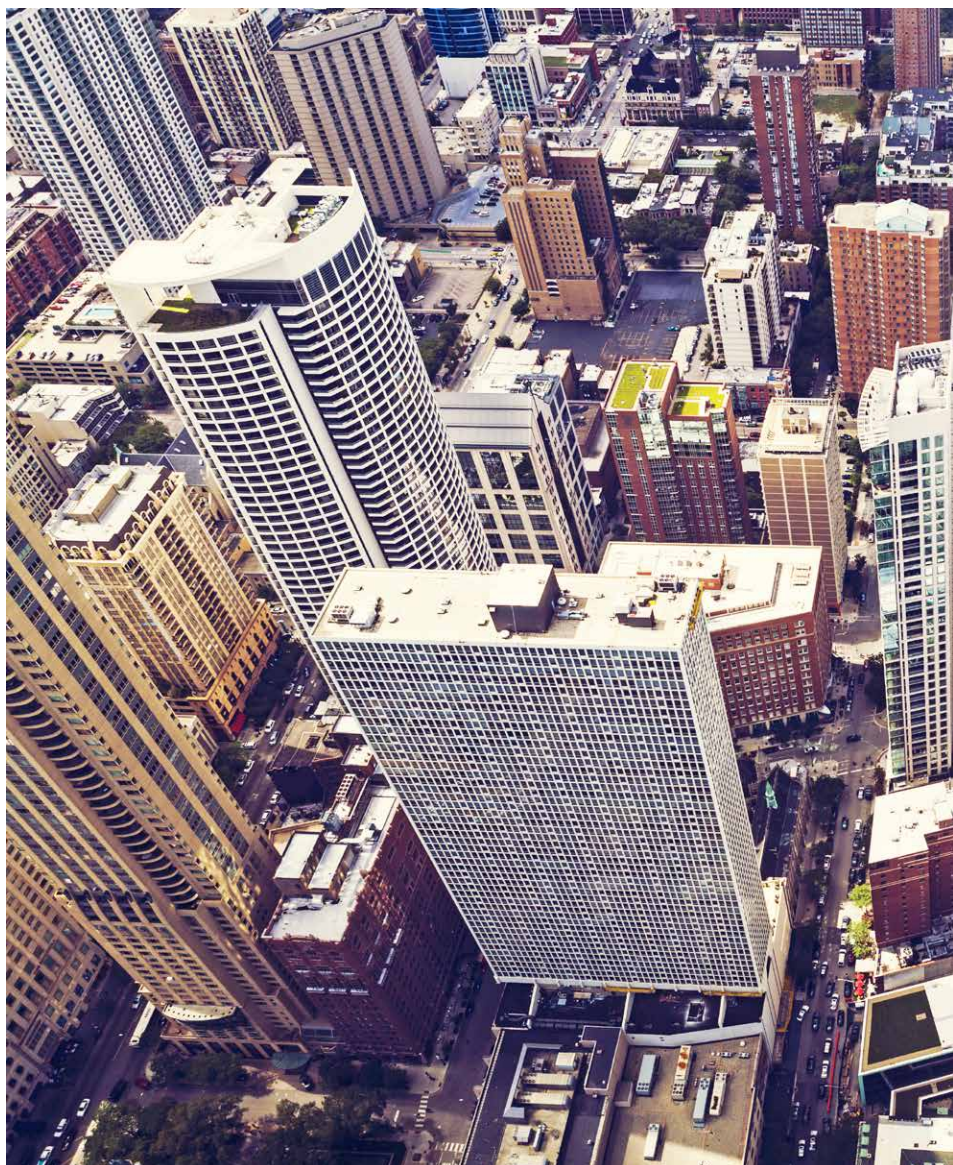
they take a portion of the savings.

3. Smart Grids

The payback from a smart grid is not necessarily in lower electric rates. Rather, it may come in the form of reduced outages and greater reliability against storms and sabotage. City governments can gain great approval if they

improve reliability and resiliency.

4. Smart Water Networks

By one estimate, 30% of all the water pumped worldwide does not reach its destination. A smart water network can pinpoint leaks and theft, gaining a quick payback in regions where water is costly.

impact on crime rates and public confidence. By feeding current and past crime statistics into analytical programs, cities can predict where crime is most likely to occur. And by equipping officers with cameras, laptops, tablets or smartphones, they can reduce the time spent on paperwork and increase the time on patrol.

7. Digital Government Services

You can often get a quick win by converting a government service from "manual" operation to a more convenient online or smartphone version. Done well, such projects can save money for the city while simultaneously improving citizen satisfaction (no more standing in line). There are dozens if not hundreds of possibilities, including licenses, permits, registration for social services, purchase of fare cards, reporting potholes and many, many more.

8. Smart Payments

Payback from smarter payments can be quick—and significant. Cash and checks create huge costs for city administrations. By digitalizing all disbursements and collections, a city can generate significant savings and increase its operational efficiency. For example, when Toronto switched its social benefits payments to prepaid cards, it saved $2.5 million annually by eliminating the cost of issuing checks. The program was rolled out in less than a year. ■

Jesse Berst is the Chairman of the Smart Cities Council, an industry coalition that supports cities with free smart city tools, resources and case studies. This article is adapted with permission from the Council's Smart Cities Readiness Guide.

5. Smart Street Lights

LED lighting makes possible big savings in energy costs. And same LEDs that save energy also save on "truck rolls." They last much longer, so maintenance crews don't have to spend as much time replacing lamps. What's more, by networking the street lights— adding communications to each one—a city can gain a "canopy network" for the whole city that is paid for by the savings in energy and maintenance. And then you can use that network for other smart city applications.

6. Smart Policing

Smart policing can have a dramatic

What Can Cities Do To Promote Greater Economic Opportunity?

By Charles Rutheiser

This article is a response to the Meeting of the Minds & Living Cities 2014 group blogging event which asked, "How could cities better connect all their residents to economic opportunity?"

For a complete list of responses, visit CityMinded.org/urban-opportunity

My friends like to joke that I have never met a simple question to which I couldn't provide a complicated answer. This article may well increase the number of people who share their opinion. But in my defense, this isn't a simple question. Its complexity lies not only in the multitude of possible answers, many of which may be upon closer examination more expressions of faith than matters of fact, but in the assumptions we often make about "cities" and "opportunity."

Focusing on the definitions of basic terms may strike some as a tedious and needless exercise in semantics at the expense of getting down to the more serious business of particular policies, programs and practices. However, I would suggest that for all of their frequent invocation, cities and, especially, opportunity, are terms with multiple and fuzzy meanings. Figuring out what they refer in this context is a necessary pre-condition for any serious business.

Often when we talk about cities "doing" something, we are referring to only one kind of system of which they are composed—the official one of public agencies and formal bodies overseen by elected officials and administrative bureaucrats.

But cities as active agents are far more than merely the sum of their public systems. Indeed, one of the things that make them such complicated and confounding places to live in, let alone manage, is that they are comprised of a multitude of individuals, institutions and networks, each driven by their own goals, interests and logics. One of the most important challenges lies in figuring out how to reconcile, mediate, balance and align all of these self-interested actors, some of whom possess far greater power and influence than the others, in pursuit of a broader or public benefit.

The simple point I wish to make here is that the responsibility for thinking about and acting in the interest of the public good rests not only with the public sector, but with other powerful institutions—among them private corporations, universities, hospitals and other anchor institutions—in partnership with communities and other less formally-empowered actors. Building and sustaining truly inclusive partnerships in the face of competing interests and rapidly changing circumstances are some of the most complicated tasks cities must face. However, the importance and difficulty of such activities are usually not fully appreciated.

Still, the conceptual fuzziness of the city is nothing compared to the concept of opportunity.

The notion of opportunity is closely connected with the very idea of America; the existence of opportunity to realize a better life for oneself and one's children is the cornerstone of the American Dream. However, the short-changing or outright denial of such opportunity for people of color, especially those living below the poverty line, has been a bedrock feature of the American reality since day one. Despite the constant invocation of its universality, opportunities for a better life are highly unevenly distributed in the contemporary United States, especially in its cities. American cities are not uniform environments, but patchworks of opportunity oases and opportunity deserts, with increasingly little ground in between.

Given the sacred importance of opportunity in American culture, one would think that is straightforward, if not easy, to define and measure. This is not the case. Some people view opportunity as largely a matter of individual striving, grit, and determination; for others it is the product of deep and highly unequal social and economic structures and systems. Both perspectives contain elements of truth, but neither is sufficient unto itself.

Opportunity is not a thing. It is, rather, a set of dynamic circumstances. Opportunity is a chance, a choice, an alternative, a possibility, a potential, it may even be a very good probability or strong likelihood, but it is anything but a certainty. Opportunity is a necessary, but not sufficient condition; its realization depends on other things happening or the existence of enabling conditions, or sometimes just the ability to be in the right place at the right time. Perhaps the most important, but underappreciated aspect of opportunity is simply the opportunity to be lucky.

Some kinds of opportunity, such as those provided by formal education, are easier to discern and grasp than others. In the contemporary United States, there is abundant evidence that shows that an individual's ability to access and graduate from college is a major determinant of their lifetime earnings and her or his ability to enjoy a standard of living above the poverty line. Higher education can thus be regarded as a structural or manifest opportunity; the value of it is very measurable in terms of job requirements, employment rates, and income. Yet, despite the clarity and increasing importance of the value of higher education, the pathways to it are

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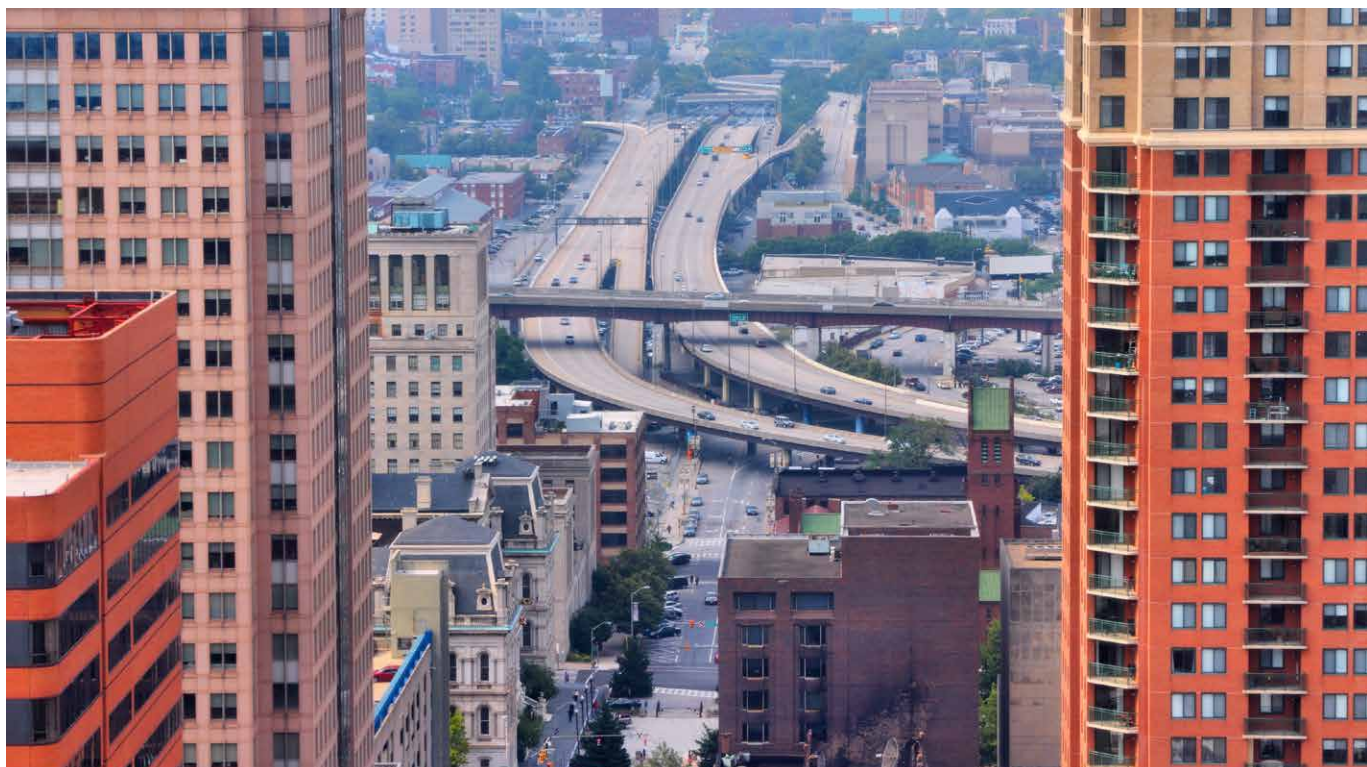
not always present, especially for young people of color living in low-income communities.

More than five decades after the dawn of the modern civil rights movement, the doors to the opportunity for higher education in the United States may be well marked, but they exist on different floors of a building where the elevators don't usually stop and where the staircases have either whole flights missing or are blocked by debris. Perhaps more than anything else, poverty can be defined, and largely explained, by a lack of chances, choices, alternatives, connections and possibilities, as well as the presence of glass ceilings and other hard, cold, invisible, but very real barriers.

But other dimensions of opportunity are far less apparent, if just as important, as higher education. Many doors to success in a wide range of careers and professions are unmarked and are totally inaccessible without someone to show the way and the ropes, to tell you how things really work, to teach you what attitudes and behaviors are necessary to succeed in these kinds of environments, as well as to make introductions and connections. The old adage "it's not only what you know, but whom you know" is not a glib, empty statement, but is an accurate description of the environs of all kinds and "collars" of work.

But opportunity is not merely a matter of what you know and who you know, but what you can imagine and choose do with it. The most latent dimension of opportunity, and most challenging to appreciate, measure and master, isn't about finding the unmarked doors, but discovering doors that no one else knew were there or making doorways (and stairways, whole rooms, entire floors, new buildings) where they could or should be, but don't yet exist, not only for yourself, but for others.

Taking advantage of opportunity requires that one can see it, if only in the mind's eye. This sense of sight, and the disciplined self-awareness and entrepreneurial sensibility that helps create it, must be cultivated and encouraged; it is a learned rather than instinctual behavior. However, this skill is not a subject in the formal educational curriculum and there is no standardized test that measures it. Nevertheless, we expect people to possess it. Requiring something that it is neither acknowledged nor provided makes opportunity even more invisible than it already is.

The question we need to be asking ourselves is: what can cities–understood here in the widest and most inclusive sense described above–do to promote this broader sense of opportunity for all of their citizens? ◼

Economic Development Through Innovation, Collaboration & Smart Grid Technology

By Russ Vanos

How do cities create greater opportunity for their residents? In two words, innovation and collaboration. With the world's population reaching 8 billion by 2025 and more than half of all people living in the world's cities, the way we manage energy and water will define this century. If you think about many cities in the U.S. today, the critical infrastructure, such as electric grids and water distribution systems, are over a hundred years old and are in need of modernization to support today's economy and lifestyle. Without power for extended periods of time, commerce comes to a halt. Without power in homes, most of us don't have lights, heat or air conditioning. Without water, we cease to exist. Clearly, energy and water are the lifeblood of thriving businesses and communities, and we need reliable access to both. To ensure that citizens like you and me have access to precious resources and new opportunities, innovation in technology and collaboration across groups and industries will be crucial to creating economic potential for us all.

Technology Innovation Will Drive Greater Opportunities

Innovative technology and new approaches for applying it will fuel smart cities of the future. To do this, cities need a strong technology foundation on which to build new applications. For example, many cities are starting to use one network to serve multiple needs, creating new opportunities for efficiency and cost savings. Utility investments in smart meters and smart grids are essential to helping cities become more effective in delivering services to its citizens, as they provide the mechanism for two-way communications, as well as a source of real-time data for reducing energy and water waste. Creating efficiency, conserving

resources and helping citizens make decisions that make their lives easier is what we're striving for—bringing all of this together is where the real value lies. If done correctly, moving from smart grids to smart cities will create new opportunities for efficiencies, conservation and economic development.

The type of critical infrastructure transformation I'm describing is a big undertaking, but we have to start somewhere, so why not the grid? Beginning with grid modernization, using open, interoperable networking capabilities, city leaders can use information captured from smart devices to:

- Dynamically pump water at off peak times, and apply the savings to sponsor other city programs, like creating solar neighborhoods

- Compare building-level information to lower energy footprint, reduce waste and create awareness to drive down city costs

- Use key information to drive focused economic development, and utilize the savings to revitalize neighborhoods

- Attract new businesses as the city's reputation for innovation and sustainability grows

Did I mention that the smart grid technology will pay for itself through operational efficiency? The underlying smart grid communications infrastructure can also be used for transportation and other services. For example, sensors that communicate using this infrastructure can be embedded in parking meters, sending information about availability to smartphones. These sensors can also be applied to parking garages about space availability, alerting drivers to traffic jams and alternate routes.

Additionally, the same technology can be used with street lights, enabling the lights to be switched on and off only when needed.

The exciting thing about all of this is that the technology exists today. The ability to give people the information they need in the palm of their hands to make informed decisions about optimizing resources and how they coexist in our cities is here. We just have to be creative about how we apply it. With smart devices collecting data and pushing it to the cloud, apps will be developed to access and deliver this information to consumers in new and innovative ways. If cities adopt technology to better their cities and the lives of their citizens, they will attract new businesses, creating new economic opportunities.

However, technology alone is not the answer. We need greater collaboration between all stakeholders to bring the best ideas forward to create a more
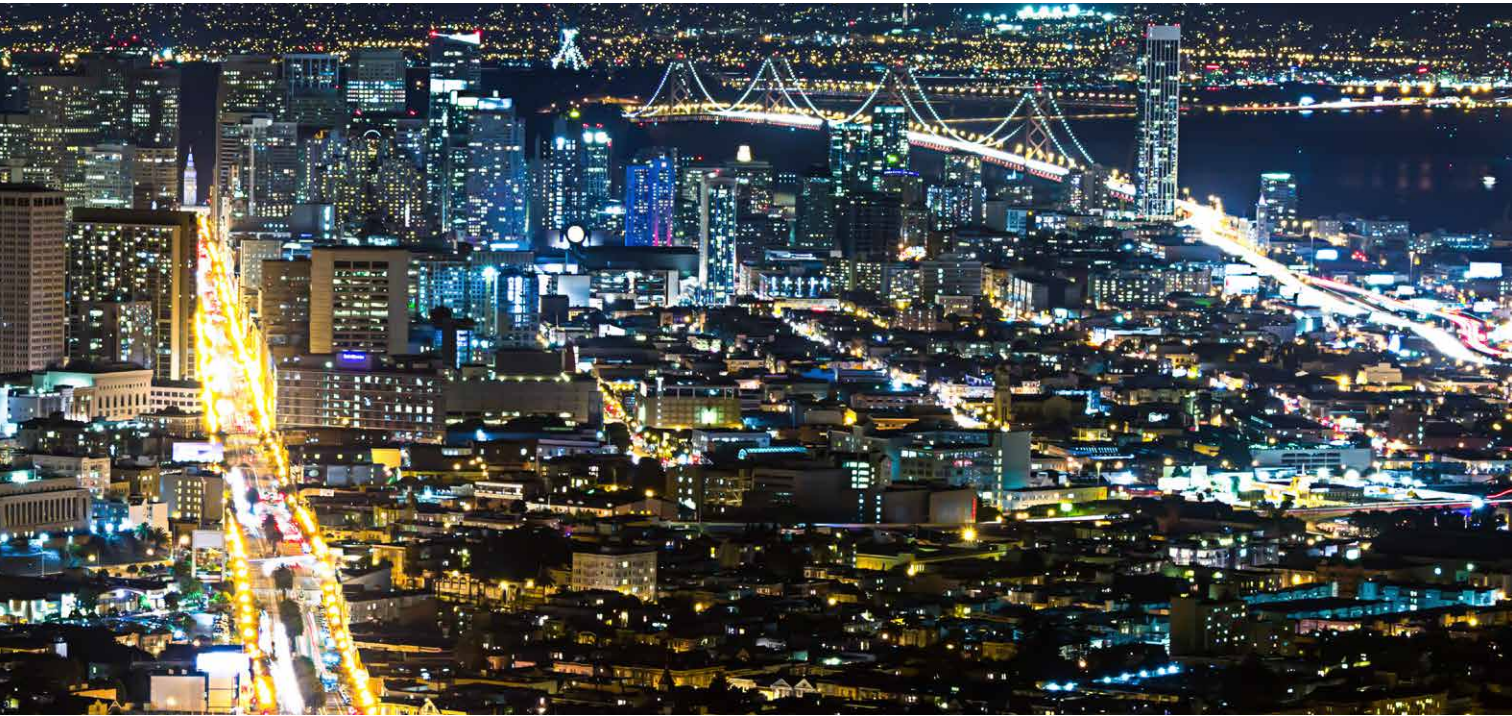
resourceful world.

Collaboration Will Contribute to New Possibilities

The best work gets done when people collaborate. This is particularly true as we collectively try to address energy, water, urbanization and transportation challenges. These challenges can't be met with single-focused solutions. They need to be viewed holistically, and it can be done. There's a great example of innovative collaboration in Charlotte, N.C. Envision Charlotte is a unique public-private initiative that leverages sustainability for economic growth as a model for all communities. Envision Charlotte is developing first-of-their-kind programs in energy, water, waste and air to conserve resources and reduce operating costs. The goal is for Charlotte to have the most sustainable urban core, connecting buildings for behavioral change to make smarter, sustainable

choices.

Collaboration is at the center of Envision Charlotte's success. Technology companies, local businesses, utilities, city leaders and NGOs are coming together to determine how they can work to create a sustainable, thriving city core.

There are other examples of how this type of collaboration is really making a difference. For example, DTE Energy in Detroit is kicking off its smart cities demonstration project with the goal of bridging the silos of smart technologies (sensors, distributed intelligence, communications) through analytics, behavioral science and innovative user applications for a cohesive engagement between citizen, corporation and community. Detroit is in the process of revitalization, and with a focus on community and economic vitality, technology and collaboration are playing a vital role in its transformation.

In closing, through innovation and

collaboration, we can create new economic opportunities for people around the world. For me personally, I envision a future where reliable access to energy and water ensure communities around the world thrive. We'll modernize grids, build smarter cities, engage with citizens in new ways, and do everything we can to better manage precious water, gas and electric resources with technology and innovation. Through it all, we'll need more creative thinking than ever before to get there—and we will. ■

Russ Vanos, senior vice president, strategy and business development for Itron, is a utility industry visionary who played a major role in driving early smart grid technology adoption in North America. He is now guiding Itron's corporate growth initiatives, specifically those focused on smart grid and smart cities.

Where Goes the Neighborhood?

By MarySue Barrett

Here's a basic recipe for a vibrant, livable global city: take an extensive transit system and locate jobs, homes, and multiple amenities nearby. Now consider New York and Chicago, which have bragging rights as the top one and two biggest U.S. transit systems. Which one do you think has added more jobs within a half-mile of transit in the past decade? Which one has more people living near transit today than in 1960? As a Chicago resident, it's not the answer I would have hoped.

While I am a proud advocate of the Chicago metropolitan region, I am frustrated and embarrassed that we've so bungled the chance to generate value from our extensive transit network. Yep, this is the place that has 386 transit stations but hasn't yet managed to tilt the scale toward clustering office, residential, and retail development nearby to make the most of that asset.

Here are some dramatic and depressing facts:

• While the Chicago region's population grew 65% from 5.5 million in 1950 to 9.1 million in 2010, transit ridership has plummeted by 61%, from 1.8 billion annually to fewer than 700 million rides per year

• Between 2002 and 2011, the number of jobs located within a half-mile of transit in the Chicago region increased by just 15,000 during a time of sluggish growth; in comparison, that number grew by more than 500,000 in New York during the same time frame

• The number of people living near transit in the City of Chicago has dropped from 1.8 million in 1960 to 1.3 million today.

NOTE: Just 21 percent of the region's jobs and 8 percent of its population are located within a quarter-mile of rapid transit.

Ironically, fixing this is not a question of residential demand. People in Chicago and nationwide are voting with their feet and their pocketbooks. The National Association of Realtors found that homes located within a half-mile of public transportation were so desirable that they were valued a whopping 41 percent higher than properties located in car-dependent neighborhoods. And no wonder, when those homeowners reap the benefits of living in attractive, amenity-filled communities and may be able to sell a car or even avoid car ownership all together.

But, there is a real tension between affordability and accessibility. The fear is that because this convenient housing located near transit is so desirable, it will push out moderate-priced housing for average working families. Gentrification is a fair concern, but one I've become convinced can be overcome.

How? By being intentional about connecting well-designed, mixed-income communities (including housing options for lower-income workers) with clusters of jobs that are currently inaccessible to these individuals, all near transit. This will increase prospects for job seekers while simultaneously expanding the talent pool for employers.

Take the case of two employment corridors located near Ashland Avenue, where Chicago Mayor Rahm Emanuel has proposed the first neighborhood route for "gold standard" bus rapid

MarySue Barrett is President of the Metropolitan Planning Council, which has been dedicated to shaping a more sustainable and prosperous greater Chicago region since 1934. As an independent, nonprofit, nonpartisan organization, MPC serves communities and residents by developing, promoting and implementing solutions for sound regional growth.
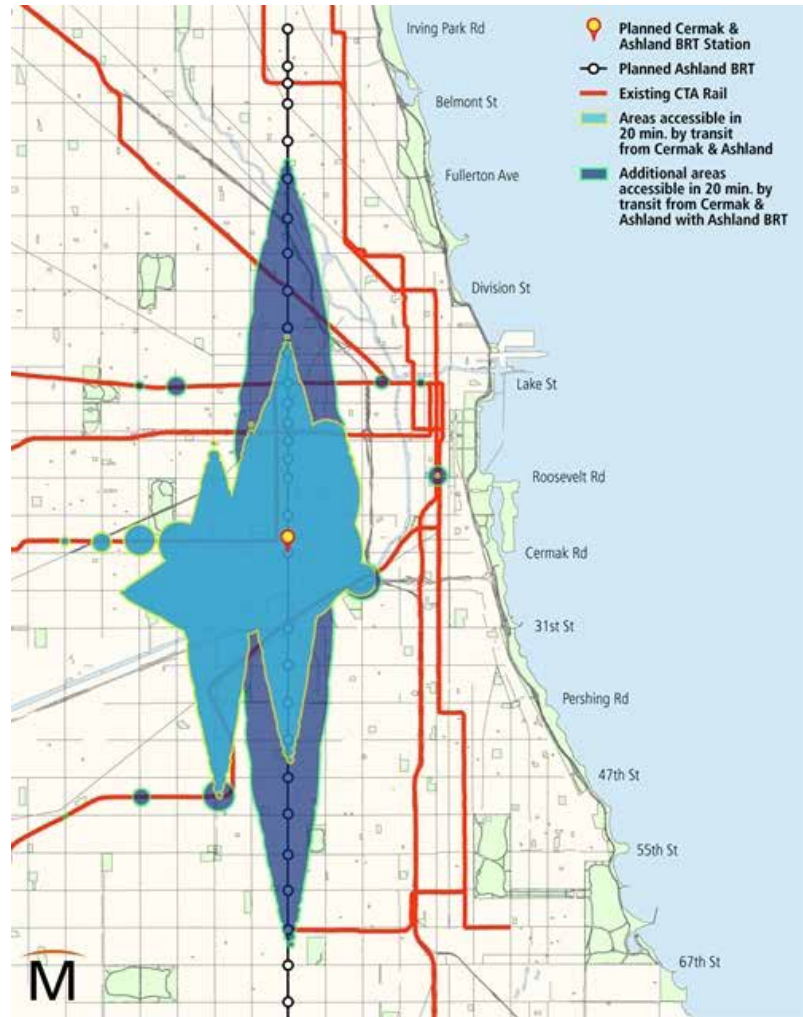
transit.

One growing employment node is the Illinois Medical District, located a couple miles west of Chicago's Loop. It is home to four major hospitals and is the destination for 20,000 workers and 75,000 visitors every day. They either compete for limited parking spaces or crowd onto the Ashland bus, the route which carries the highest volume of riders in the city. The Ashland Avenue BRT will speed transit times by 30-50 percent and unleash the growth of these anchor institutions.

Another high-potential node is the Pilsen Industrial Corridor, one of six industrial corridors that will be served by Ashland BRT. The figure below illustrates that this southwest side zone, which follows the Chicago River, will then be accessible to 50,000 more adults within a reasonable 20-minute transit trip. Growing businesses like the Chicago International Produce Market—a Terminal Market that is home to 22 produce purveyors including some third- and fourth-generation companies—will benefit from greatly improved access and talent.

So let's return to that recipe for a healthy region. Connecting good jobs and reliable transit is a key ingredient. So is attracting investors and developers who can execute on equitable development. Achieving this vision will require beefed-up incentives to encourage clustered mixed-use development in optimal locations.

The City of Chicago took an important first step with a new Transit Oriented Development ordinance passed in fall 2013. It allows for reasonable increases in density and cost-saving reductions in parking requirements for specific parcels a quarter mile from Metra or CTA rail stations. At least one proposed development, steps away from the Paulina Brown Line station, is making use of this new tool.

Cities like San Francisco—where 41.2 percent of jobs are within a half-mile of transit compared to only 31.6 percent in the Chicago region — have taught us that we must go further. The Metropolitan Planning Council will be working simultaneously to: strengthen the TOD ordinance's incentives; explore development financing that supports TOD; map and market available parcels and work with the Cook County Land Bank to ease acquisition; and partner with hospitals, universities, and manufacturers on live-near-work-and-transit benefits.

These proactive steps will have measurable payback. Our ultimate success will be measured in expanded choices. Do moderate-wage workers have access to affordable homes near their jobs and transit? Do commuters have real choices about getting to work within a reasonable time? Have anchor institutions been strengthened by a bigger labor pool and more attractive campuses? By jointly pursuing accessibility and affordability, we're on a path to answering yes. ■

Cities Need a New Business Model to Compete in the 21st Century

The Business Case for Municipal Management Innovation

By Justin Bibb

Justin Bibb is Founder and Managing Principal of the Morris Strategy Group, strategic consultancy that provides advisory solutions to companies, institutions, and governments. Additionally he is a JD/ MBA Candidate at Case Western Reserve University in Cleveland, OH where he focuses on the intersection of community economic development, new venture creation, and urban policy.

When you think of innovation, rarely does the term "municipal government" come to mind. That needs to change if the U.S. hopes to maintain it's standing as a global economic power. Cities are the main engines of domestic economic output. As a U.S. Conference of Mayors study showed, in 2012, 92% of the jobs added and 89% of growth in real GDP occurred in metro areas. However, major demographic shifts, falling revenues, and rising citizen demands have placed an unprecedented amount of pressure on municipal governments across the U.S.; posing a grave threat to the economic vitality of America's urban core.

To grapple with these challenges, municipal governments must improve the business model of how they operate. Mayors, city councils, and other municipal elected officials need to embrace the new normal and adopt strategies and frameworks to solve problems that aren't always politically expedient.

Working with their public sector clients, Accenture suggests that:

"Governing in the new normal demands that agencies rethink, reinvent and reinvigorate. This means continually and proactively challenging the status quo in everything they do—from administration and operations to collections and service delivery."

Thus in the case of cities, the vision set by city leaders does matter. In an analysis of the budgetary decisions facing 13 U.S. cities, IBM found that 30% and 60% of the budget-balancing measures adopted by local governments represented one-time savings or revenue generating measures rather than permanent changes to cost structures. If city leaders adopted a new management approach to identify and root out inefficiencies in their operations, they could shed costs without significantly impacting service levels. Key tools such as participatory budgeting, business process modernization, and technology

could all be leveraged to improve the procurement of core services.

Barriers to Success

So what's holding municipal leaders back?

1. Lack of Public Trust

Across the country, political gridlock and partisanship are at all-time high. Trust in government continues to decline, especially at the local level. According to a 2013 poll conduct by the National League of Cities, only 37% of voters trust their local government. This low level of civic trust makes it increasingly difficult for city leaders to galvanize the public around transformative ideas to drive critical policy outcomes.

2. Federal Disinvestment

Since the end of WWII, urban disinvestment has accelerated and been encouraged by federal policies that promoted suburban flight. This took place simultaneously alongside deindustrialization and automobile-oriented sprawl triggering massive job and population losses. The federal government has the opportunity to play an important role in encouraging cities to be more entrepreneurial in how they govern. By leveraging existing federal resources and encouraging investment into distressed urban areas, the federal government can be a conduit to empower municipal leaders to pursue more innovative policies.

3. Leading with the Wrong Metrics

For most municipal leaders, they judge their success based on traditional measures such as the local unemployment rate, small business starts, and property values. Yet, rarely do we consider the driving forces that impact these metrics. Through their work in understanding community engagement, the Knight Foundation has discovered that attachment to place is driven more by factors such as diversity, community aesthetics, and wealth of social offerings rather than just perceptions of the local economy. If municipal governments developed and articulated their policies with this perspective, they could go a long way in creating more targeted policies aimed at addressing some of the root causes of urban decline.

Translating Better Municipal Management to Greater Urban Economic Opportunity

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Putting these ideas into action isn't a small task. Especially as falling revenues, demographic shifts, rising citizen demands, and new technologies continue to converge to create a complex environment for city leaders. While daunting, city governments can turn these challenges into an opportunity to seek higher performance; which can yield tremendous economic benefits to their citizens.

Specifically, transitioning into a more innovative operating model for municipal government could help create:

- Government-wide collaboration around outcomes

- Flexible and tailored service delivery strategies

- Technology-enabled citizen participation

- Open, transparent and accountable government

Across the country, there are already great models where city leaders are innovating to increase the economic opportunity of their cities. For example, Mayor Mike Bell of Toledo developed a successful public-private partnership with the local chamber of commerce to attract more than $6 million worth of foreign investment, a new metalworking plant, and an additional $200M commitment from Chinese investors to support local economic development efforts. "For little old Podunk, Ohio, it's been pretty phenomenal what we've been able to do," said Dean Monske, president and chief executive of the Toledo Regional Growth Partnership. In South Bend, Indiana, Mayor Pete Buttigieg worked with a local start-up, called EmNet, to became the first city in the world to migrate its sewer system to the cloud, saving them $100M in future costs. For Mayor Buttigieg, his philosophy is "all about taking the value of data and shaping them into answers to help solve big problems."

Through these examples it's easy to see why now is the right time to develop a renewed commitment to encourage greater innovation in municipal government. Let's hope American cities don't get left behind. ■

The (Untold) Argument for Urban Agile Approaches

By Kaz Brecher

It's almost impossible to attend a conference on Smart Cities or Urban Innovation without finding a group of people shilling the radical transformation that's possible with Agile or Lean methodologies, as popularized by the Lean Start-Up refrain of Eric Reis. But these approaches produce specific types of outputs and are nowhere close to the panacea our cities increasingly demand. A simple primer on these methodologies will highlight short, tight cycles of effort, called sprints, with multi-disciplinary teams dedicated to cracking well-articulated tasks (with Lean aimed at developing a business model and Agile connoting a process that can be applied to executing almost anything that lacks clear definition).

So, what does any of this have to do with the urban challenges we're facing like air pollution, waste and recycling, or uneven access to resources?

At the most basic level, it is clear that we can't continue using the vastly outdated ways of working in our cities, taking years to test and implement broad adjustments. The system behind synchronizing traffic signals in Los Angeles is a prime example. The Automated Traffic Surveillance and Control system indeed delivers one of the world's most comprehensive systems for mitigating traffic, but it was developed over 30 years at a cost of $400 million. When the citizenry and their demands are evolving on a timescale of months not years, these kinds of timelines are impossible to maintain. And most of the pilots we see coming out of city planning departments have to do with execution strategy—rolling something complex out to a few users first, either for PR purposes or to speed adoption and win more budget once a solution is shown to be implementable.

In Internet and communications technology, Agile and Lean disciplines

have led to the meteoric proliferation of innovations. And it's de rigueur to view the speed and truncated timeline as the biggest reason to adopt these practices in shaping our mega-cities. After spending nearly two decades orchestrating teams in the emerging technology sector, I deeply believe there is enormous potential, but only if we can get past the jargon and grasp the core tenets of these concepts—and it's NOT speed.

The biggest benefit of using Agile or Lean to push the boundaries of innovation is that user needs drive the process as well as the outcome. And learning is understood to be a more important outcome than mere imple-

mentation. By this I mean that there is a subtle but critical distinction between running a pilot to prove an idea versus testing the assumptions and hunches we have while actively iterating solutions. For the sake of argument, I'll simply refer to this approach as Agile, since the same iterative learning loop is at the core of how Lean can best be used for cities. So, let's take a closer look at user needs in this context.

Technology companies live and die by how well they can respond to their user needs. And don't confuse this as merely responding to comments made on Twitter by having a dedicated customer service team placating complaints. A true feedback loop must be

built into the product development cycle, which can then expose, measure and optimize how well ideas and input are taken in, digested, and integrated. This removes some of the ideation burden from the core team, as your users will have ideas emanating from their daily use, and it ensures that effort applied to those ideas will strengthen loyalty and stickiness. smartsheetTake my favorite productivity tool as an example. Smartsheet not only responds within hours to questions about features or product enhancements but also posts their entire Product Roadmap for users to examine.

Of course, in technology companies pumping out ephemeral products made of 1s and 0s, there are no vested interests bound by the costs of real infrastructure and no political cycles intermediating the costs of pilots and greenlights. But imagine how much more efficiently we could invest taxpayer dollars and direct private investment, if we truly committed to putting human-centered design at the heart of a rapid iteration framework. By testing the assumptions we've made about true citizen needs and the barriers they face to adopting new municipal services, we could adjust solutions before discovering costly error months (or years!) into an initiative.

A burgeoning understanding of this seems to be reflected in the 2013 report from the Knight Foundation on Civic Tech, which shows a swell of emerging investment. Granted, many of these fledging companies and apps facilitate input and engagement from the digitally savvy citizens, who may be the least impacted by the vagaries of low-income city dwelling. And these still don't address the system into which the user feedback is ingested—the disciplines of urban planning and innovation itself. But it's an important start.

How might this work if we take the gnarly, entrenched problem of food deserts? An issue of this level of complexity would take hours to deconstruct. But at the most basic level, what we can safely say is the following:

1. Food deserts are a growing problem, incurring hundreds of thousands of dollars in related healthcare costs

2. The common belief is that access to supermarkets is the answer

3. But nothing has changed in decades despite small efforts here and there to address increased access

Taking an Agile approach to this challenge would mean starting with that most basic assumption: that access is the crux of the problem. We would test other means of putting regularly available, competitively-priced fresh foods into the ecosystem to see what happens, as I've proposed with pairing food trucks with existing large-scale grocers who can leverage their existing infrastructure to keep costs down. And we'd need to consider the role of the multitude of factors, from the time that a single mother may have to prepare food from scratch (are healthy frozen meals the answer perhaps) to understanding what kids will eat no matter the cost of convenience. The point isn't that food trucks are the answer, but that they may allow us to rapidly test ideas around access, taste, desire, and nutrition without investing in large-scale effort. We should place small bets, and double down where we find traction.

A constant, responsive learning mindset around the true unmet needs of citizens will begin to demand a more rapid cycle of engagement, improvement, and implementation—and THIS is the real reason urban solutions need agile approaches. A reframe of this nature creates a virtuous cycle that we can no longer afford to ignore amid mass urban migrations and mega-cities spreading across the globe. This approach takes courage, as it relies on admitting that the experts may not have the answers at the start.

Rob Shelton, a Global Innovation Strategy Lead at PWC captured this beautifully at the Social Innovation Summit at the end of 2012. He wanted to dispel the fashionable notion that to innovate, one must fail forward or fail fast. As he says, inspired by the great physicist, Fermi, "Take a hypothesis, your bold vision, and test it, prototype it. If the results match your hypothesis, you have data. If when you test your hypothesis, the results don't match, you have a discovery [not a failure!]. At the heart of great innovation are partners working together in an ecosystem, doing rapid prototyping to test things, embracing the duality of data and discovery."

To get to breakthrough discoveries, we need educated risk-taking and bold commitment to trying new approaches. If we can embrace Agile methodologies in an urban context, deeply valuing their core principles of flexibility, learning from true user needs, adjusting solutions, and quickly testing, perhaps our citizens will enjoy the same kind of revolutionary transformation we've seen in the technology arena. While I'm a deep believer that not all problems can be solved by technology, our urban challenges can surely benefit from its Agile and Lean underpinnings. ◼

As the daughter of two rocket scientists, Kaz founded Curious Catalyst to marry investigation with action, bringing disruptive agile approaches to urban challenges, and a new take on the business of social impact through her experience with lateral thinking, rapid prototyping, and human-centered design.

LET'S FIND MORE WAYS TO USE LESS FUEL.

Today, we're not only working to find more energy, we're helping inspire ways to use less. That's why for over 25 years, the Shell Eco-marathon has been challenging schools and universities around the world to design, build and test ultra-energy efficient vehicles. At this year's event, Mater Dei High School achieved 2,471 miles per gallon with their prototype vehicle, "Supermileage 2." This spirit of innovation is spreading. In 2015, the Shell Eco-marathon Americas will move to Detroit, Michigan, a city with a history of mobility engineering and innovation, and an ideal place to drive the world further toward a sustainable energy future. **www.youtube.com/shellletsgo**

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