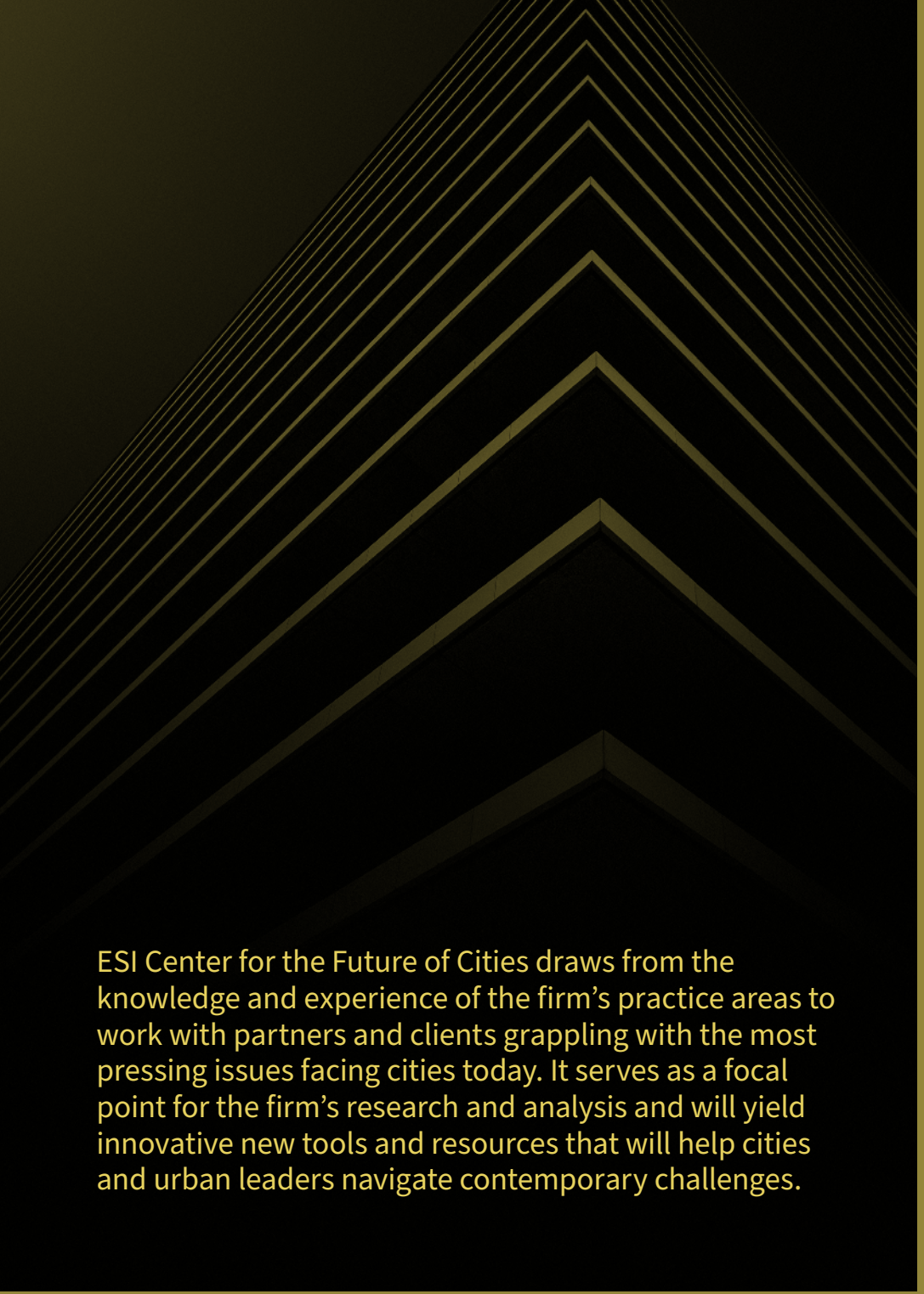
ESI CENTER FOR THE FUTURE OF CITIES

Providing evidence-based research on the most pressing issues facing cities, ESI Center for the Future of Cities is the thought leadership initiative of Econsult Solutions, Inc.

CATALYST FOR CHANGE

THE FUTURE OF CITIES >

Helping cities become smarter, healthier and more connected



ESI Center for the Future of Cities draws from the knowledge and experience of the firm's practice areas to work with partners and clients grappling with the most pressing issues facing cities today. It serves as a focal point for the firm's research and analysis and will yield innovative new tools and resources that will help cities and urban leaders navigate contemporary challenges.

Contents

3 CHARTING A COURSE FOR THE FUTURE OF CITIES

ESI Center for the Future of Cities | A Holistic Smart City Framework

6 LIVABILITY

Public Safety | Sustainability/Environment | Public Health

16 MOBILITY

Multi-Modal Transit | Traffic Management | Electric and Autonomous Vehicle Readiness

26 INVESTMENTS

Equitable Economies | Advanced Talent | Public/Private Innovation

32 GOVERNANCE

Hyperconnectivity | Cybersecurity | Strategic Funding

39 FUTURE OF CITIES FOCUS AREAS

Redefining Smart and Connected Cities | Inclusive Entrepreneurial Ecosystems | Accessible Quality of Place

44 HOW TO CONTACT US

Charting a Course for the Future of Cities

"At the heart of nearly all ESI's work is a **passion for cities**. Our team of urban economists, planners and policy experts understand the unique challenges of cities, and **love working to develop innovative approaches and solutions** that allow cities to thrive and grow."



Lee Huang,
President and Principal
Econsult Solutions, Inc.

Catalyst for Change

In 2021, Econsult Solutions, Inc. (ESI), officially launched the ESI Center for the Future of Cities. As the firm's thought leadership arm, it brings together the firm's expertise in urban economics to address the most prominent issues facing cities around the world. City leaders need a blueprint for building safer, more sustainable, and resilient 21st Century cities. ESI Center for the Future of Cities is poised to do just that, by producing high-quality, cutting-edge research.

As ESI celebrates the one-year anniversary of the center, we are thrilled to present a collection of our smart city-focused thought leadership and research. This portfolio connects the firm's urban economics, policy, and strategy expertise and sits at the forefront of addressing the most challenging issues city leaders face today.

The ESI team has produced ground-breaking research that has helped lay the foundation for building out a more just, sustainable, and prosperous future in four key focus areas:

Livability
Investigating how technology can improve the quality of life all citizens, interconnecting and leveraging resources to ensure cities are safer, and cleaner;

Mobility
Exploring the rise of autonomous and electric vehicles, assessing the catalytic impacts of transit investment, in addition to exploring the delicate balance between optimal density and congestion;

Investment
Analyzing how technology can improve and foster inclusive economic growth, the importance of an environment that attracts and retains innovative talent, strategic public and private partnerships for sustained success of smart city programs;

Governance
Surveying how governments are leveraging new technology and practices to enhance quality of life and foster growth, enhancing cybersecurity systems and increasing citizen engagement.

As we move forward, ESI Center for the Future of Cities will continue to build on those ideas and sit squarely at the intersection of public and private needs. At the end of *Catalyst for Change*, we invite you to join us in future projects as we explore our visions for the next generation of cities. We look forward to your feedback and connecting on a deeper level, and we welcome the chance to discuss our goals and objectives in further detail, as well as discuss your vision for the future of cities, and how we can help make those plans a reality.

Return to Contents

ESI Center for the Future of Cities

ESI Center for the Future of Cities stems from the depth and breadth of research, analysis, and policy formation our firm has completed in the urban arena. The reports listed and linked below show a sampling of our work for major cities, corporations, and world-wide thought leadership studies.

- Smart City Solutions for a Riskier World*
- Building a Hyperconnected City*
- Smarter Cities 2025*
- Driving ROI Through AI
- Driving Cybersecurity Performance
- The Cybersecurity Imperative
- KPMG 2020 Autonomous Vehicles Readiness Index
- Visa Cashless Cities

*Over the course of our smart cities series, the terms to label smart city maturity evolved. Throughout the sections of C*atalyst for Change*, the following terms and definitions are applicable depending on which study is referenced or excerpted.

Smart City Solutions for a Riskier World (2021)

Leader	Advanced in the use of technology and data across the urban domains
Intermediate	Making progress on using technology and data across the urban domains
Beginner	Starting to use technology and data to achieve goals

Building a Hyperconnected City (2019)

Leader	Ahead of most peers in interconnecting urban ecosystem and seeing significant economic, business, and social benefits
Advancer	Making progress on interconnecting urban ecosystem and realizing benefits
Implementer	Making strides and investments to interconnect urban ecosystem

Smarter Cities 2025 (2018)

Leader	Ahead of most of their peers in smart city transformation and seeing significant benefits
Transitioning	Seeing progress and benefits from smart city initiatives
Beginner	Starting to pilot and plan for smart city initiatives

Return to Contents

Look for this symbol to link to additional resources.

A Holistic Smart City Framework

Four focus areas shape a holistic framework for our inquiry into how cities of the future can be better equipped to solve urban problems, provide high quality services, drive sustainable growth, and prepare for economic and social success.

Livability

Public Safety

Sustainability/Environment

Public Health

Investments

Equitable Economies

Advanced Talent

Public/Private Innovation

Mobility

Multi-Modal Transit

Traffic Management

Electric and Autonomous Vehicle Readiness

Governance

Hyperconnectivity

Cybersecurity

Strategic Funding



Return to Contents

Livability

Livability **is a framework for the ways in which technology can cultivate greener, more resilient cities, keeping residents safe from environmental degradation, as well as employing technology for increasing health, and reducing crime. Through the fostering of technologies, woven seamlessly into the urban fabric to improve the overall quality of life for residents, livability in focus means raising the quality of life in cities in every aspect, from clean air to breathe and safe drinking water, to safe, flourishing neighborhoods.**

Livability in Focus







Return to Contents

As we adjust to the new normal of living with COVID-19 and climate change, these urban challenges continue to be a source of concern for citizens, businesses, and governments around the world. Adjusting to the new normal is difficult but using them as a platform to create better solutions for the future is key to building better cities. ESI research has shown that public safety, the environment, and public health are top concerns for citizens and addressing them is a high priority. The works included in this section detail just how important livability in all realms of life is to citizens and businesses alike.

"The future of cities will be more sustainable if we can bridge the gaps between people, planet, and profit."



Gina Lavery

Senior Vice President and Principal
Econsult Solutions, Inc.

ESI Center for the Future of Cities Project Lead for ***Ensuring Accessible Quality of Place***

Return to Contents

Public Safety

Combating Crime in the Future

As the world slowly recovers from COVID-19, and citizens are returning to enjoying city life and all it has to offer, governments will have to prioritize the physical and digital safety of citizens and visitors. In fact, our findings from a smart city survey in our 2018 ***Smarter Cities 2025*** thought leadership report found that 45% of 136 cities surveyed saw high crime and public safety as one of their main challenges, which they hope to alleviate using smart technologies. This view about crime was even more pronounced in Asian cities (68%) and in large cities with populations over 10 million (53%). Cities are now exploring an array of smart technologies to combat crime, including:

- **Big data and Artificial Intelligence (AI)** for real-time facial recognition, license plate scanning, crowd-sourcing apps, as well as predictive policing tools to anticipate where and when crimes may occur.
- **Drones** for search and rescue missions, viewing hostage situations, monitoring fires and automobile accidents, and even tracking down escaped criminals.
- **Acoustic sensors** to alert police departments when a gunshot is fired—currently used by over 90 cities in the U.S.
- **Body cameras** for police to keep both officers and the public accountable during interactions, to photograph evidence, and record interviews.
- **Smart street lighting** with sensors that detect gunshots and show approaching pedestrians and vehicles.

"We believe that precision policing represents the next phase of the policing revolution. It draws on previous innovations, like CompStat (a data-based tool), and criminological advances, like quality-of-life policing, but goes beyond them. We believe that it can make any city, town, or neighborhood a safer—and fairer—place."

— **William J. Bratton** is the former police commissioner of New York City, where crime rates have fallen to their lowest level since the 1950s

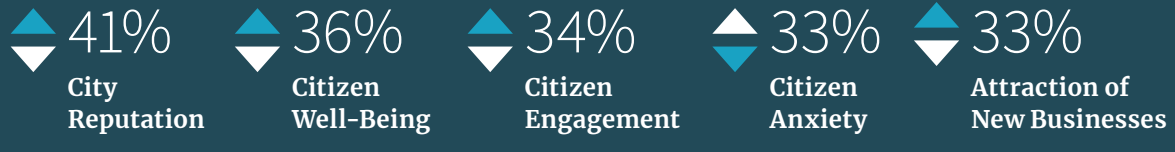
Return to Contents

Safer Cities Generate Higher Returns

Even though some public safety technologies generate high returns, adoption rates remain low. That is because crime is not a major problem for all cities; however, those that do adopt these technologies find substantial quality of life benefits. The technologies in greatest use are smart stations/kiosks that allow emergency calls, emergency notification apps, smart surveillance, and police body cameras. The highest ROI (return on investment), however, comes from such less-used technologies as gunshot detectors and real-time crime mapping.

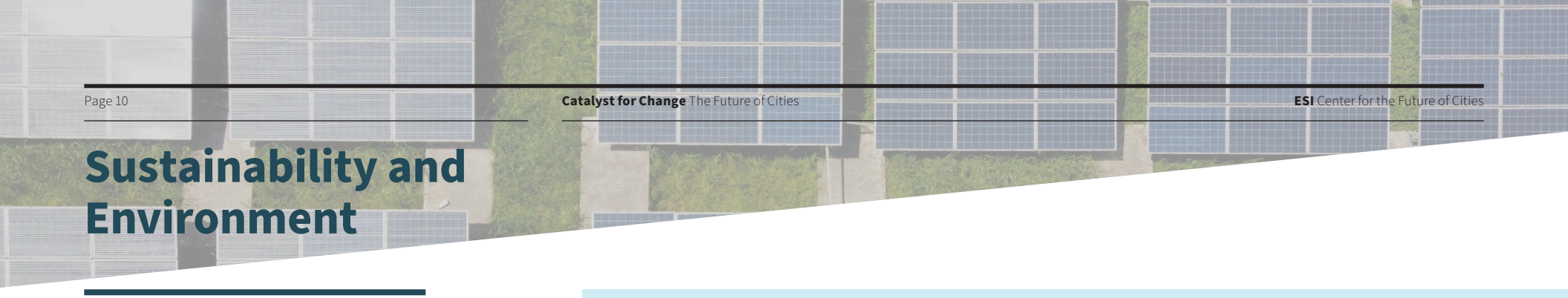
As found in our 2019 ESI ThoughtLab research initiative, ***Building A Hyperconnected City***, many leaders of cities made significant use of smart surveillance. Cities employing public safety technologies must be careful of harmful biases that perpetuate discrimination tactics within vulnerable communities. Public safety technologies will generate the highest ROIs long term when they are utilized to protect everyone.

The Main Benefits of Public Safety Initiatives



Source: ESIThoughtLab, *Building A Hyperconnected City* (2019)

Return to Contents



Sustainability and Environment

Cities Face Climate Change

Cities are feeling the impact of climate change with rising coastal flooding, extreme heat, wildfires, and catastrophic storms. Although governments have begun to recognize the dangers of climate change, planning and designing for more climate resilient cities must start now. As cities begin to invest in greener technologies like electric vehicles (EVs), smart grids, air and water sensors, and waste collection and management optimalization, they need to ensure that these technologies work in tandem with one another and that cities have the capacity to deploy and maintain them.

Business owners and city residents want environmental improvements.

Ecological issues are top of mind for residents and business leaders alike, wanting their cities to increase investments in sustainable solutions. According to the survey completed for our ***Smarter Cities 2025*** research initiative, both citizens and businesses indicated they want greater investments in environmental improvements. Investments in systems that provide data to consumers so they can be better aware of energy usage, and deployment of smart grids that enhance utility management are two types of smart technologies for which stakeholders have indicated support.

Stakeholders want cities to increase investments in ...	Citizens	Businesses
... smart data analytics to make businesses/consumers more aware of energy use	56%	49%
... smart utility grids that use embedded sensors to manage water, gas, and electric services	55%	46%
... environmental sensors for continuous monitoring of air quality	54%	43%
... improved coordination of power generation and power demand	54%	36%
... predictive maintenance planning for key environmental areas	54%	47%
... incentives for installing responsive devices and appliances	52%	44%
... distributed generation from renewable sources and micro-grids	50%	27%

Source: ESIThoughtLab, *Smarter Cities 2025* (2018)

Return to Contents

The Future of Cities is Outdoors

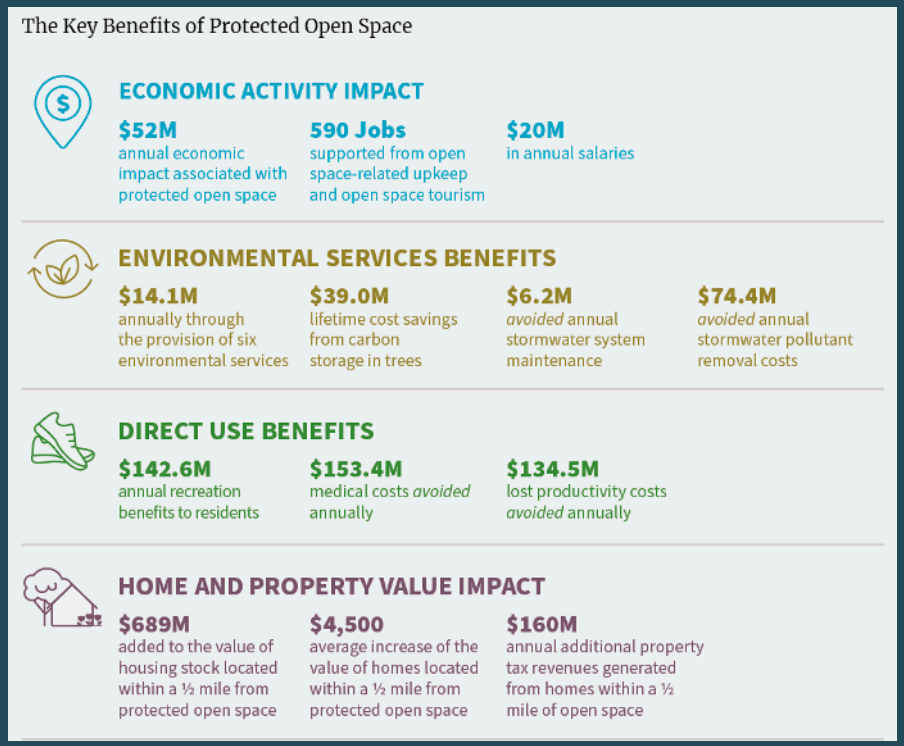
Future cities will ensure green spaces are accessible to allow residents to enjoy the outdoors. ESI research and consulting projects in recent years have highlighted the importance of investing in green infrastructure including the overall economic and social benefits such policies have on communities. ESI's analyses of the return on investment in environmental infrastructure has quantified the economic, environmental, and health benefits derived from a variety of green infrastructure including protected open space, parks, and trail networks.

ESI's research has affirmed there is a link between physical inactivity and demand for health care, and a positive relationship between the number of recreational opportunities available to an individual and the frequency of their participation in physical activity. ESI's recently completed Return on Environment studies for counties in the Greater Philadelphia region have demonstrated that protected open space presents opportunities to foster greater diversity, equity, and inclusion in communities, while also assuring avenues for economic benefits for the county and its residents.

Spotlight

Return on Environment

ESI completed a series of Return on Environment assessments for counties of the Greater Philadelphia region. Each assessment quantified the return on investment in protected open space, measuring the benefits to communities ranging from economic, to environmental, and health. The analysis includes protected open spaces such as parkland, farmland, river corridors, trails and bikeways.



ESI's Return on Environment studies quantify the range of benefits to a community generated by investments in protected open space.

Source: Econsult Solutions, *Return on Environment of Protected Open Space in Delaware County, Pennsylvania* (2022)

Return to Contents

Financing Green Infrastructure

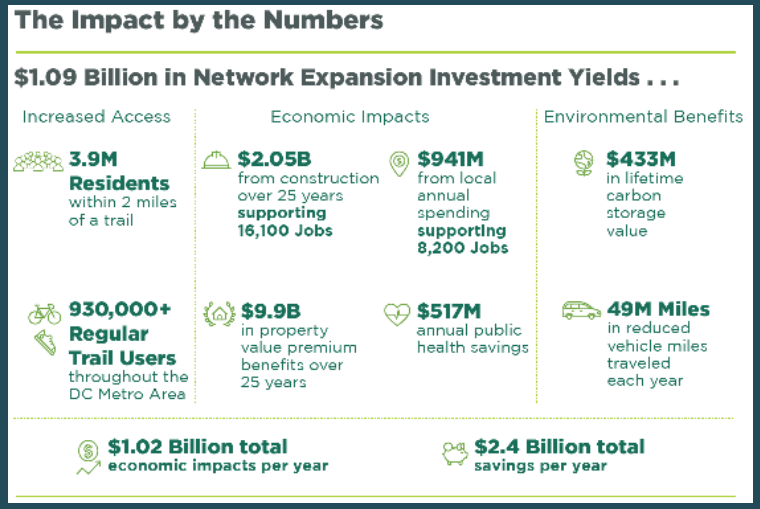
Large cities such as Baltimore, Washington, and Philadelphia are leaders in the use of green infrastructure to fulfill regulatory mandates (i.e., reducing combined sanitary-storm sewer overflows, or CSO) and achieve broader community objectives (i.e., improving health and addressing climate change). For smaller communities, lack of financial resources can be a significant barrier to employing green infrastructure solutions.

In 2022 ESI contributed to ***Financing Green Infrastructure*** by the International City/ County Management Association (ICMA). ESI's research drew from interviews and research of communities within and outside of the Chesapeake Bay watershed. The report is a guide for decision makers in small to mid-sized communities, providing recommendations for how to develop a financing strategy for green infrastructure. It includes definitions, enumerates the benefits, and lists currently available funding sources.

Spotlight

The Economic, Health, and Environmental Benefits of Trail Networks

The Capital Trails Coalition (CTC) has been working to advance completion of an accessible, equitably distributed, interconnected network of multi-use trails in the Washington, DC metropolitan area. When complete, the 881-mile trail network will span six jurisdictions. Currently it includes 479 completed miles and 402 miles of planned trails. CTC turned to ESI to measure the array of benefits which were reported in ***The Economic, Health, and Environmental Benefits of Completing the Capital Trails Network.*** The estimated cost to complete the network is $1.09 billion over 25-years. For this investment in green infrastructure, ESI found that the economic impact amounts to over $2 billion along with concurrent property value increases, heath cost savings, and environmental benefits including $433 million in lifetime carbon storage.



Source: Econsult Solutions, *The Economic, Health, and Environmental Benefits of The Capital Trails Network* (2021)

ESI's economic analysis of the impacts of a trail network quantifying the value of green infrastructure for a region.

Return to Contents

Public Health

Cities Should Be Health-Supportive Environments

The global COVID-19 health crisis heightened the responsibility of city governments to promote and ensure a healthy living environment. According to the World Health Organization, cities should create a health-supportive environment, achieve a high quality of life, provide basic sanitation and hygiene needs, and supply access to superior healthcare. Now more than ever cities must begin to see public health not only in the physical sense but in the social sense as well. As we have learned over the course of the COVID-19 pandemic, easy and equitable access to doctors, medical personnel, better quality of basic services including clean air, water, and sanitation are all part of a more efficient public health network.

To improve the health of their citizens, smart cities are working with the healthcare and academic communities to promote the use of latest technologies, such as wearable sensors that monitor an individual's physical activity and health, telemedicine that allows doctors to treat patients remotely, and street light sensors that track air quality and pollution.

Spotlight

Copenhagen

Copenhagen is considered one of the healthiest cities in the world according to the World Health Organization, as was highlighted in ESI ThoughtLab's 2018 ***Smarter Cities 2025*** report. The city promotes health in everyday life by making it attractive to cycle, creating abundant green space, finding the right work-life balance, ensuring air and water quality, and encouraging healthy eating and quit-smoking programs.

In the words of Ninna Thomsen, Copenhagen's mayor for health and care, "Health is not a goal in itself, but is a means to enjoying life." Copenhagen is also using advanced smart technology to improve the health of its residents. For example, our research found that 90% of citizens use or have access to communication with doctors through mobile apps. And 83% can have their medical records easily transferred among doctors.

Return to Contents

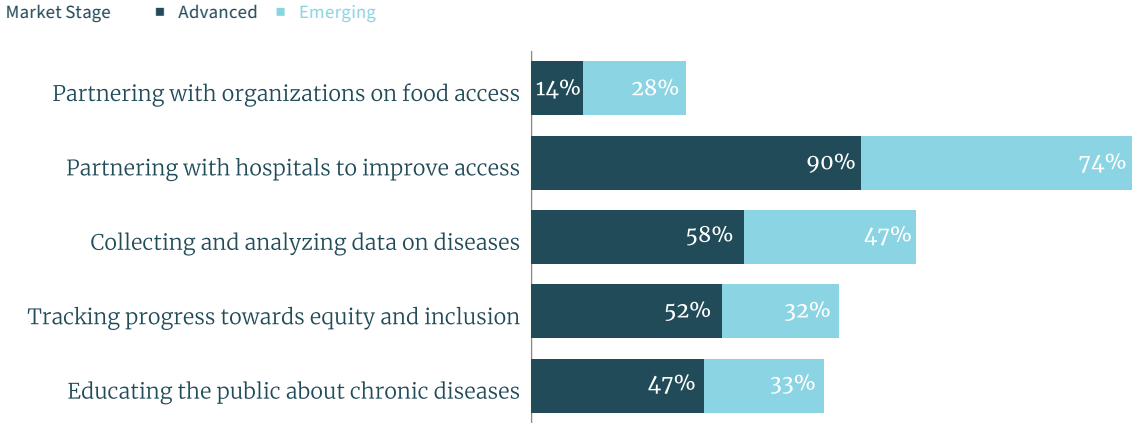
Healthier Cities are Better Cities: The ROI on Public Health and Well-Being

ESI ThoughtLab's 2021 research initiative, ***Smart City Solutions for a Risker World***, found that cities that lead in smart initiatives put a high priority on leveraging data to better understand epidemic diseases, partnering with hospitals to improve healthcare access, and using metrics to track progress towards goals to increase inclusiveness. Advanced cities are also investing in advanced technologies to ensure that citizens and employees have access to needed healthcare and financial assistance during the pandemic. Technologies like remote medicine and telehealth services saw the biggest ROI, along with online government benefits portal. As we continue to learn important lessons from the global pandemic, advancements in real time air quality data and apps, and the use of track and trace technology will increasingly become more important for cities both small and large.

Technologies Most Cities Invested in ...	
Remote medicine and telehealth services	83%
Online government benefits portal	83%
Real-time air-quality information	54%
Use of data to redesign public welfare programs	34%

Technologies with Largest ROI	
Remote medicine and telehealth services	6.16%
Online government benefits portal	5.90%
Use of track and trace technology to ensure health and well-being	5.47%
Real-time air-quality data and apps for those with chronic diseases	5.31%

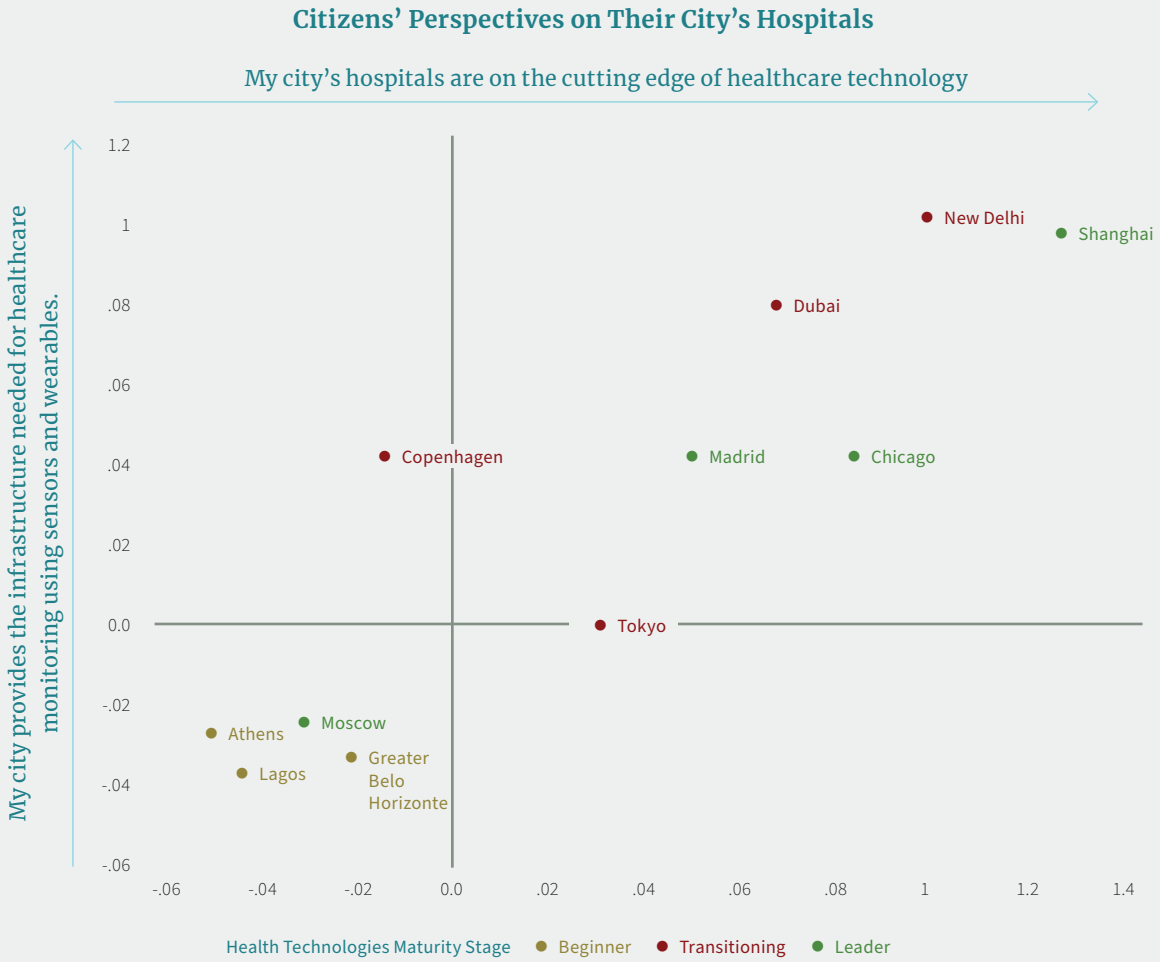
Where Effectiveness Diverges by Market Development



Source: ESIThoughtLab, *Smart City Solutions for a Riskier World* (2021)

Return to Contents

The Use of Smart Health Technologies from the Perspective of the Citizen



Q: To what degree to you agree with the statements: My city's hospitals are on the cutting edge of technology (x-axis), My city provides the infrastructure needed for smart health technologies (y-axis)?

Source: ESIThoughtLab, *Smarter Cities 2025* (2018)

In 2018, ESI economists established a methodology for ranking of the use of smart health technologies at a city-level, setting the responses of citizens living in 11 proxy cities as the control. The rankings correlated the availability of health-related monitoring in a locale with the technological sophistication of a city's hospitals. This analysis revealed that, in the view of residents, Shanghai, New Delhi, and Dubai are furthest ahead, followed by Chicago, Madrid, and Copenhagen. Most of the cities that were behind in this measure are those that are at the beginning their smart city journey, including Athens, Lagos, and Greater Belo Horizonte.

Through our 2021 research, *Smart City Solutions for a Riskier World*, we also found that cities in regions defined as emerging markets are more likely to see public health as a major challenge requiring smart solutions (58%), vs. cities located in regions that are advanced (50%). This may reflect the poorer overall conditions in emerging markets and the need for innovative healthcare solutions.

Return to Contents

Mobility

Mobility **is a framework that values seamlessly integrated transit technologies with the goal of enhancing a city's transportation network. Cities that prioritize multi-modal transit, EV charging infrastructure, telecommuting, bike and car sharing services, and data-driven traffic management, can help citizens in their daily lives and help visitors navigate cities more easily. For example, with an understanding of the economic toll congestion has on a community, using data to enhance real-time traffic management systems and smart signals can ease the causes of traffic congestion, improving mobility, and more generally, the quality of life in a city.**

Mobility in Focus







Return to Contents

"It is crucial for regions to continually adapt and support its transit services in the continuously changing economy. The long-run consequences of failing to adapt would result in significant economic losses for a region."



Richard Voith, Ph.D.
Principal
Econsult Solutions, Inc. and
ESI Center for the Future of Cities

According to a survey of city leaders across the globe conducted in 2021 for *Smart City Solutions for a Riskier World*, over half had started to re-evaluate approaches to mobility and transportation. Threats like the COVID-19 pandemic and vulnerabilities linked with climate change have prompted more citizens to demand and more cities to invest in a wider mix of smart transportation solutions, including use of data to improve transportation routes and deal swiftly with traffic problems, to offering more travel options and universal payment accounts. Younger generations, which represent the future for urban centers, have a greater desire for transportation options like ridesharing, e-bikes, and scooters, so preparing city streets with infrastructure to accommodate diverse transportation modes is crucial.

Return to Contents

Multi-Modal Transit

Future Transit is Multi-Modal

As cities and technologies advance, new modes of transportation will rise in importance. Our research found that cities that invest in technologies like real-time public transportation apps, demand-based micro transit like ridesharing and shuttle vans, and public electric vehicle (EV) charging infrastructure are seeing the greatest returns. Our 2019 research initiative, ***Building a Hyperconnected City*** showed that investment in public transit projects increased passenger satisfaction by 38%, and increased access to employment opportunities by 27%. As later revealed in our 2021 ***Smart City Solutions for a Riskier World*** work, cities that invest in real-time public transportation apps/information, along with demand-based micro transit systems like ridesharing and shuttle vans, saw the largest return on investment.

The Main Benefits of Public Transit Initiatives

- ▲ 38% **Passenger Satisfaction**
- ▲ 33% **On-Time Arrivals**
- ▲ 32% **Convenience for Transit Riders**
- ▲ 29% **Transit Ridership**
- ▲ 27% **Access to Employment Opportunities**

Source: ESIThoughtLab, *Building A Hyperconnected City* (2019)

Technologies Most Cities Invested in ...	
Real-time public transportation app/ information	83%
Demand-based micro transit, such as ridesharing & shuttle vans	68%
Public electric vehicle charging infrastructure	68%
Smart traffic signals/real-time traffic management	63%

Technologies with Largest ROI	
Real-time public transportation app/ information	6.59%
Public electric vehicle charging infrastructure	5.56%
Mobility as a service (MaaS) apps	5.48%
Smart parking app	5.32%

Source: ESIThoughtLab, *Smart City Solutions for a Riskier World* (2021)

Return to Contents

Spotlight

The Rise of Rideshare and a Resurgence of City Nightlife

Generating billions of dollars in economic impact, supporting numerous industries, and bringing diverse people together, New York City's thriving nightlife economy is both a case study and a lesson for other cities around the globe.

ESI completed the first ever economic impact analysis of NYC's Nightlife Economy which included a mobility component. An analysis of time and location pick-up data from the New York Taxi and Limousine Commission illustrated the impact of For-Hire Vehicles (which include taxis, Uber, Lyft, and others). ESI tracked trips to and from nightlife centers by aggregating all trips in a year, subtracting airport trips and evening commutes. The findings—in 2018, approximately 32 percent of all taxi and FHV trips were nightlife related. Notably, the nightlife economy burgeoned in NYC's boroughs concurrently with the rise of rideshare.

The SEPTA Key Advantage: A Driving Force for a More Equitable Philadelphia

Solutions in action often combine data, analysis, technology, and leadership. In 2022, ESI assisted Southeastern Pennsylvania Transportation Authority (SEPTA) with research, development, and implementation of the Key Advantage program. The Key Advantage program, modeled after programs in Chicago, Pittsburgh, and Seattle, creates an employee benefit for partnering organizations that purchase monthly Anywhere TrailPasses for their employees, which pays for employees' commute on all SEPTA transit modes. Although this type of program may not rely on smart transit technology per se, the partnerships fostered have increased funding to enable public transit sustainability and improvements, while widening access to employment, and equitable transportation for more people. Furthermore, increased transit ridership means reductions in traffic congestion and CO_2 pollution.

SEPTA faced competition from new travel options, including motorized bicycles, scooters and rideshare. Reduced transit use is one of the key reasons for increased automotive congestion in a city. Without competitive and effective public transit service, congestion will continue to worsen, with adverse impacts on an entire region's economy—much of which is borne by low- and modest-income families.

Just before the pandemic, SEPTA began rethinking important elements of its fare structure, resulting in significant improvements like the elimination of transfer fees,more child-friendly fares, and an overall more equitable approach to transit. Pre-pandemic, a large share of transit riders purchased weekly or monthly passes, which were priced to be attractive to five-day-a-week commuters. These passes might no longer be competitively priced with more flexible work schedules. It is important to keep in mind that transit use is habitual (as is car travel), and the pandemic has broken the transit-use habit for many.

Those who expected mobility to greatly improve with the increase in remote work likely have been disappointed. Addressing the region's mobility challenges, which include reinvigorating transit use along with efficiently using both automotive and transit infrastructure simultaneously, is crucial to ensuring that the Greater Philadelphia economy is on a path of growth and improving the quality of life for its residents.

It is crucial for the region to continue to adapt and support its transit services in the continuously changing economy. The long-run consequences of failing to adapt would result in significant economic losses for the region, as infrastructure is inefficiently used, and congestion grows on roadways. Declining confidence in transit could result in more cars purchased, more greenspaces converted into low-density developments, and ultimately huge new infrastructure expenses to support a less-green form of development that will only exacerbate climate change challenges. Over the next few years, the agency will need to deliver quality service during both peak and off-peak hours, as well as quality service on weekends to adapt and meet flexible work and travel demands.

A Brighter Future for SEPTA

Institutional passes can help stabilize revenue.

More riders can lead to a safer experience.

Induced demand can lead to increased service levels.

Econsult Solutions Principal Richard Voith and Associate Director Tiffany Hudson contributed to this excerpt. Text originally published in Present Value, Econsult Solutions' weekly blog.

Return to Contents

Re-Imagining Transit Networks for Potential Development

Understanding a city's transit network and identifying areas that need improvement will help build out more efficient systems and help cities refine and boost ridership and economies of scale. As transit technologies advance, transit providers and the cities they operate in must be intentional about using evidence-based analysis both to plan and tailor their services for the future.

New Light Rail Line Impact in New York City

Transit and economic development have long had demand-supply interrelationships. When New York City planned to introduce a modern, 16-mile streetcar/light rail line to connect the boroughs of Brooklyn and Queens, known as the BQX, an analysis was commissioned which ESI completed. At issue were property value impacts and development potential generated by the BQX. ESI's analyses modeled for properties within one half mile along the planned rail line and citywide, estimating that the BQS would add $1,272 million in market value to residential properties and $185 million to commercial properties.

Bus Rapid Transit, Montgomery County, Maryland

Bus Rapid Transit can be a component of a robust multi-modal transit network. High speed trains are great for connecting and creating regional network systems but there is still value and need for efficient bus systems. In 2018 ESI evaluated how the proposed MD355 BRT (Bus Rapid Transit) would add value to properties around proposed stations and impact future economic development along the congested route MD 355 corridor in Montgomery County, Maryland. ESI analyzed county data and determined that the investment in MD355 BRT would increase commercial property values near proposed stations with concurrent increases in tax revenues. BRT generates economic impacts while increasing mass transit capacity while utilizing existing roadways.

Return to Contents

Ferries and Their Role in Multi-Modal Transit Systems

Incorporating all forms of multi-modal transit options will be most impactful when planning for traffic congestion relief in the world's most populated cities. Cities that have available ferry transit opportunities can capitalize on its direct user benefits, and potential wider economic benefits for the region.

Ferries can close gaps in the transit network, making travel more convenient for many users. The improved service may divert drivers to transit or allow people to make trips they would not have otherwise made. When these additional travelers connect from the ferry to other transit systems, they boost the other system's ridership and revenue.

ESI contributed to the *Citywide Ferry Study* in 2013 report commissioned by New York City Economic Development Corporation (NYCEDC). ESI assessed the real estate and development benefits attributable to the East River Ferry.

ESI's analysis found that the ferry service increased the value of homes that were within 1/8 mile of terminals by 8.0%, and 2.5% for all homes within a 1/8 of a mile to 1/4-mile band away. In addition, new residential developments within 1/4 mile to service increased by nearly 350 additional residential units and 487,238 residential square feet. In several cases, the total user benefits were greater than total operating costs, meaning that the subsidy was less than the total net benefit for users after paying the fare. The report found agglomeration effects for worker accessibility with greater service, as well an easing impact on the transit network, reducing overcrowding on New York's typical public transit system. Finally, as tragically shown by September 11 and Hurricane Sandy, the ferry service can be established easily and quickly to respond to transit service disruptions.



Spotlight

New Jersey Transit Capital Plan

In 2020, ESI collaborated with the Center for Advanced Infrastructure and Transportation (CAIT) at Rutgers University to evaluate and produce an economic impact study of New Jersey Transit's 5-Year Capital Plan. NJ Transit proposed its first 5-year needs-based Capital Plan in 2020, identifying the investments needed to meet organizational goals and deliver top quality transit service. This multi-billion-dollar program would generate significant direct and spillover impacts within the New Jersey eco economy, creating jobs and economic activity throughout the state.

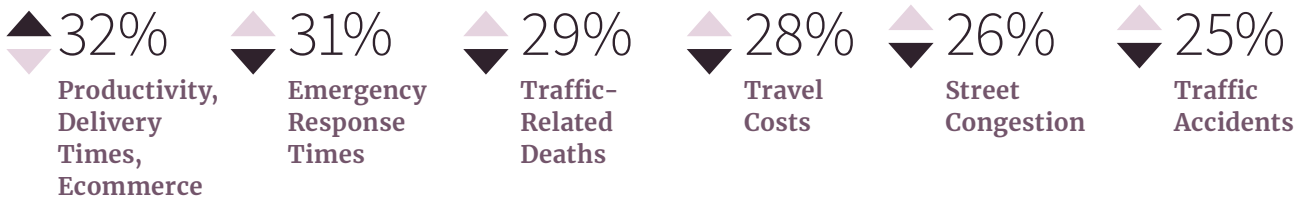
Return to Contents

Traffic Management

Smart Technologies Reduce Congestion

Cities investing in advanced traffic management technologies like smart traffic signals, sensors, predictive analytics, and cashless tolling are seeing higher ROIs, according to the 2019 ESI ThoughtLab ***Building A Hyperconnected City*** survey of cities. Cities who are farther along in building out smart infrastructure have adopted real time traffic management technologies and saw a strong ROI of 6.1% in 2019. There are many benefits of developing more advanced traffic management initiatives with increases in improved productivity, delivery times, and ecommerce, along with reduction of traffic related deaths and reduced emergency response time. All these benefits make cities far more livable and enjoyable to navigate.

The Main Benefits of Traffic Management Initiatives



Source: ESIThoughtLab, *Building A Hyperconnected City* (2019)

Return to Contents

The Cost of Congestion

Traffic congestion is a major urban issue for citizens and businesses alike. Measuring the toll it takes illuminates the magnitude of the issue.

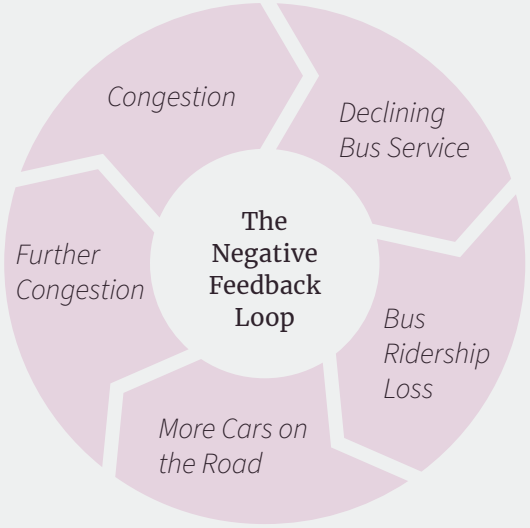
A 2019 ESI report completed for the Philadelphia region's public transit agency, SEPTA, quantified the economic and social loss that traffic congestion engenders in Philadelphia's Center City district. The report categorized two types of impacts that congestion has on all Philadelphians:

- Direct Impacts account for time value and transportation cost losses to drivers, to bus riders, and to SEPTA;
- Downstream Impacts gauge losses to the city's economy, its tax base, and its transportation network.

While congestion is in part a signal of a city's success, if not managed properly it reduces the attractiveness of a downtown as a business location, limiting job growth and opportunities for residents, and undermining key competitive locational advantages. Further, traffic delays impact buses to a greater extent than cars, deepening existing equity challenges and setting into motion a vicious cycle by incentivizing riders with sufficient means to find alternatives, compromising the future competitiveness of a bus system while adding even more traffic to the roads.

Key Findings from How Center City Congestion Impacts All Philadelphians

Direct Impacts	Downstream Impacts
9.7M **Annual Hours of Time Delay for Bus and Car Passengers**	15,700 **Potential Jobs Forgone**
$152M **Annual Time Value and Transportation Costs to Bus and Car Passengers**	$1.08B **Potential Earnings Forgone**
$21M **Additional SEPTA Bus Operating Costs and Downstream Revenue Losses Annually**	$58M **Forgone City and School District Tax Revenue**



Return to Contents

Electric Vehicle and Autonomous Vehicle Readiness

As cities look to design roads that are greener, safer, and capable of handling more efficient modes of transportation, electric vehicles (EVs) and autonomous vehicles (AVs) are both increasingly becoming a part of streetscapes.

Spotlight

Autonomous Vehicle Readiness Index

ESI ThoughtLab, supported KPMG in developing ***The Autonomous Vehicles Readiness Index*** *(AVRI),* a tool to help measure the level of preparedness for autonomous vehicles across 30 countries and jurisdictions. It is a composite index that combines 28 individual measures from a range of sources into a single score. The 2020 edition of the AVRI adds five new countries: Belgium, Chile, Denmark, Italy, and Taiwan. The AVRI indicators are organized by four key pillars—policy and legislation, technology and innovation, infrastructure, and consumer acceptance.

EVs have increasingly become a popular and viable solution to decreasing carbon emissions globally. This newly increased interest in EVs has led to cities planning and redesigning communities and prioritizing the build out of their EV charging networks to accommodate all types of consumers. ESI's 2022 Present Value blog **"Prioritizing Equity in EV Infrastructure Planning with Data"** highlights some of the current challenges the U.S. is facing when it comes to building out a strong charging network.

Despite some of the challenges ahead, EVs can have a major impact on how we navigate much greener and cleaner roads. If cities plan with a data-centered, equity framework for EV charging stations and EV marketing, there is a unique opportunity for cities to address inequities and the greener efforts of EVs by leveraging high quality data. Understanding how communities use their transportation networks and analyzing activity-based travel modes will be a powerful tool when transitioning to the EV model. Overlaying these insights with other demographics, such as income, mobility, and road quality will be powerful metrics of design for EV infrastructure in both cities and rural areas.

By leveraging powerful data analytics and using it to best select site location for charging networks, we can not only increase EV exposure, but we can also ensure that charging infrastructure is employed equitably. Additionally, integrating big data analytics can help to better estimate the load on the electric grid that EVs are having depending on the time of day, which is critical for assessing installation and operating costs.

Autonomous Vehicles will have similar challenges to EVs, and face difficulty being widely accepted by the public. AVs will impact land use patterns, supply chain and logistics, and impact how consumers travel and commute throughout the city, and there will need to be extensive high-speed coverage to accommodate more AVs on the road. AVs have a particular opportunity to impact ecommerce companies due to their ability to reduce cost, as fewer drivers are needed.

Return to Contents

Electric Vehicle Pitfalls

Lack of charging infrastructure. Although public perception of EVs is steadily warming up, there is still a steep hill for public and private agencies, as well as cities to climb if they want people to fully commit to a greener way of driving. The lack of charging infrastructure and the need for publicly available charging in disadvantaged communities and rural corridors must be at the forefront of EV adoption. As it stands, there are only about 45,000 charging stations, and 115,000 public and private charging outlets in the U.S., with a considerable amount of them in California. And even within cities that have a considerable amount of charging stations, the majority are in neighborhoods where the median income is substantially higher.

Lack of accessibility for rural communities. Communities in rural areas also come with their own set of barriers to EV adoption. Rural commuters often drive longer distances and may need more access to at home charging rather than publicly available charging in higher density cities. However, installing and maintaining EV charging stations along the U.S.'s rural corridors is essential to completing the charging network, and assuage the range distance anxiety that a lot of EV drivers feel due to the lack of stations when taking longer trips.

Lack of accessibility for persons with disabilities. There is also an accessibility issue when it comes to the design of electric cars due to the battery pack being installed under the floor bed of the vehicle, raising it inches higher than the standard gas-powered car. This can make it difficult for wheelchair users, or those with physical disabilities to easily maneuver in and out of the vehicle. A small adjustment in design could mean millions of Americans could have access to the EV market that previously did not.

Lack of visibility of EVs keeps confidence levels down. Municipalities should also include the electrification of transit buses, street sweepers, and other commercial fleet vehicles to increase EV visibility on the roads. If potential customers see EVs being integrated into the city landscape, along with more charging stations, this builds confidence and increases the likeliness that they will commit to an electric car knowing that there is infrastructure built to support them.



Return to Contents

Investments

Smart Investments **is a framework that prioritizes investing in more inclusive entrepreneurial ecosystems and building smart foundations to ensure that the technologies being used now remain efficient and equitable in the future. Cities cannot just rely on advanced gadgets, but must invest in the foundational policies, infrastructure, and talent that will sustain their success. Future cities will need a strong infrastructure that can support new talent and spur innovation. Prioritizing the current and next generation of minority businesses and startups is vital when thinking about the future of cities. Innovation and creativity are produced by the people who work and start business in the city, and by making it easier for them to access capital and information creates the opportunity for economic growth for business owners and the city itself.**

Investments in Focus







Return to Contents

Smart Investment also focuses on how cities and governments can attract and retain smart talent to their region. The cities of the future will be spaces where companies can test and experiment their latest technologies with the opportunity to scale up and accelerate groundbreaking products and services. Talent is the lifeblood of smart cities, and cities will need to ensure that there is existing and future infrastructure being built that will foster and encourage innovation in order to attract and maintain incoming talent.

"Cities compete on innovation. In order for us to properly and effectively explore innovative solutions, diverse perspectives are absolutely necessary."



Frank Robinson

Director
Econsult Solutions, Inc.

ESI Center for the Future of Cities Project Lead for ***Inclusive Entrepreneurial Ecosystems***

Return to Contents

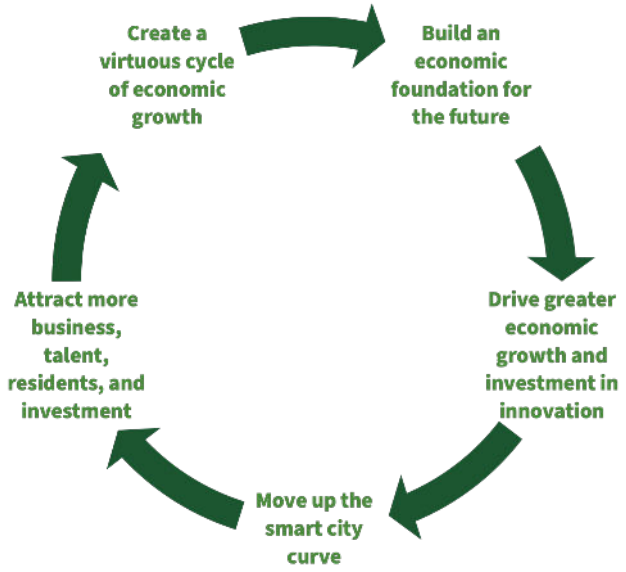
Equitable Economies

The 4th Industrial Revolution Must be Inclusive

Laying a solid foundation for smart city growth requires a cogent economic development plan for attracting business and investment, fostering industry development, promoting ecommerce, and creating new local and global trade linkages. As they embark on their smart city journey, cities need to ensure they have an economic foundation in place that will allow their cities to succeed in today's fourth industrial and digital revolution. With digital technology, industrial sectors, global linkages, and customer behaviors in a state of rapid flux, cities must replace old economic models built on single industries or skill sets that are no longer relevant, for more efficient, varied, and resilient systems.

Our *Smarter Cities 2025* survey found that as cities in 2018 moved up the smart city maturity curve, they put a higher priority on economics. But to reap the full benefits, cities should put their economies on a stronger footing as they begin their smart city transformation programs. Cities that adapt their economic models are better equipped to drive economic growth, competitiveness, and investment in innovation. As these cities move up the smart city maturity curve, they become more attractive to businesses and residents, which creates a virtuous cycle of economic growth.

The Virtuous Cycle of Economic Growth



Source: ESIThoughtLab, *Smarter Cities 2025* (2018)

Building an Inclusive Economy

Research shows that innovation happens in increments rather than all at once and is birthed by teams and not individuals. Innovation is accelerated in settings where interactions between diverse groups can happen frequently and at times, unexpectedly.

While innovation can emerge from anywhere in the world, cities represent an important location because of the possibility cities offer to gather people at scale, colliding together new insights and disparate perspectives to inch our way to breakthrough. That is the fundamental value proposition of cities, that concentrations of people create a virtuous cycle of discourse birthing new ideas, compelling more people and money to flow in, leading to still more engagement and energy and innovation.

But unlocking that value proposition takes hard and intentional work. Innovation cannot happen when entire groups are systematically excluded from making contributions and reaping the benefits based on race, ethnicity, sex, or income level. Unfortunately, there remains far too much disparity in access, resources, and opportunity in cities across the U.S., and the legacy of historical injustices whose systemic influences carry into the present.

Thus, cities that fail to recognize and address the barriers that keep all entrepreneurs from succeeding will not only be less equitable places but also less successful places. Conversely, cities that desire to thrive in the future need to understand how to create inclusive entrepreneurial ecosystems.

> "As markets emerge from COVID, businesses that are still standing have demonstrated their agility and fortitude. In addition, there is a new breed of business owner with the ability to create demand and drop ship, leveraging technology and cash flow. Brokers have proliferated. The disparities studies previously conducted do not reflect current market conditions. Goal setting that was once a challenge based on the availability of small businesses may be neglected due to supply chain inequities. We must develop a protocol for businesses to expand capacity via building productive business relationships and partnering (e.g., joint ventures, subcontracting, acquisitions and mergers, etc.).
>
> Equity and Inclusion will only work if leaders have the will to make it so. We need to help business leaders find a way to work with civic leaders to improve the education system, increase opportunity for college bound students and integrate the union trades for others."
>
> — **Angela Dowd-Burton**, CEO, DowdBurton and Associates

Return to Contents

Advanced Technology and Talent

Future Jobs Need Tech Talent

Talent is the key to maintaining and sustaining the life of smart cities, yet many cities are not doing enough to nurture the diverse workers and skills needed for the digital age. While there is not a single formula to attract and retain talent, the most successful cities have built urban centers that cultivate academic partnerships, develop vibrant technology sectors, encourage entrepreneurship, and create a local cultural hub that attracts creative talent.

The entire economy benefits from the influx of tech talent. Enrico Moretti, an economist from the University of California, estimates that for every college graduate that accepts a job in the tech industry, five additional jobs are created within the city.

To benchmark the emergence of new jobs, from 2019 to 2021 ESI partnered with research and technology consulting firm Cognizant to create the *Jobs of the Future Index* (CJoF Index). This quarterly index explored trends and patterns of 50 jobs. Supported by economic research provided by ESI, the CJoF index found that an increasing number of traditional jobs are requiring advanced technology skills for new employees, and that new roles are being created that utilize technology to address emerging challenges. The uptick in openings for digitally enabled jobs bodes well for the jobs of the future. It broadly suggests a continued transition to a digital-first world, better prospects for skilled, higher-wage earners, and larger investments by private businesses and the public sector in their own digital transformation.

> "There is a very strong track record of places that attract talent becoming places of long-term success."
>
> — **Edward Glaeser**, Professor of Economics, Harvard University

Spotlight

Cell and Gene Therapy and Connected Startup Growth in Philadelphia, PA

In 2019, the CEO Council for Growth, University City Science Center, and University City District's West Philadelphia Skills Initiative convened a partnership to leverage their resources and networks on an initiative to support and grow the Philadelphia region's cell and gene therapy and connected health industries by taking a proactive approach to understanding the growth of, and gaps in, the cell and gene therapy and connected health workforce in Greater Philadelphia. ESI provided an independent, geography-specific assessment of the future workforce and talent needs of these industries. ESI developed scenarios for future growth of the sector and utilized LinkedIn and Burning Glass data to understand and project future workforce supply and demand.

Return to Contents



Public/Private Innovation

Innovation Districts Drive Regional Economic Competitiveness

Innovation is driven by co-location in areas with leading research institutions and companies clustered together in dense and diverse urban environments. Businesses understand the role of inclusion in spurring innovation: strategically hiring locally and seeking minority- and women-owned enterprises with which to do business. These practices create more economic impact in the region and enhance local business capacity. Our 2019 work with Wexford Science & Technology and their proposed 3440 Forbes Avenue mixed use development for the Oakland neighborhood of Pittsburgh highlighted the importance of cross sector collaboration between universities, cities, and the private sector. In the economic impact report, ESI articulated the new development's contribution to the local and state economy and the tangible benefits of job creation and tax revenues generated due to its potential development.

For Wexford Science & Technology, ESI conducted a ***comparative analysis*** of 4 innovation districts—University City in Philadelphia, Kendall Square in Cambridge, Oakland in Pittsburgh, and South Lake Union in Seattle—to demonstrate that University City, Philadelphia, PA is a business location of choice for these high-tech bio science business sectors. In doing so, ESI illuminated the 10 characters of an innovation district as defined by the Brooking's Institute that exist in University City: (1) presence of advanced research institutions, (2) access to talent, (3) startup culture, (4) entrepreneurial support resources, (5) collaborative mechanisms, (6) partnership with local government, (7) dense urban settings, (8) transportation infrastructure, (9) amenity-rich environment and (10) cost factors.

Return to Contents

Governance

Governance **is the keystone for building a successful, inclusive smart city. Creating a tech-enabled vision for the city, with a cohesive implementation plan to deliver results in a manageable, cost-effective way will allow governments to transition smoothly to more digitalized services and resources. Smart governments will ensure housing affordability, guarantee internet and connectivity services to all its citizens, while also ensuring they have the infrastructure to support a more connected society. Developing far-reaching and all-encompassing broadband coverage is how cities ensure its citizens are accessing all the digital services it has to offer.**

Governance in Focus







Return to Contents

"Affordable housing investment improves neighboring property values, while enabling cities to be more inclusive and more attractive places."



Richard Voith, Ph.D.
Principal
Econsult Solutions, Inc.
and ESI Center for the Future of Cities

Urban leaders must factor in the expectations of local citizens and businesses to ensure alignment and buy-in. Setting a policy framework that encourages innovation and adoption of smart technologies, a strong cybersecurity network, financing and funding, and citizenship engagement to employ smart city initiatives is vital for driving performance.

Return to Contents



Hyperconnectivity

Future Jobs Need Tech Talent

In 2019, ESI ThoughtLab gathered benchmarking data from 100 cities, conducted in-depth interviews with city leaders and drew on valuable input from a cross industry coalition of leading firms and research organizations. *Building a Hyperconnected City* study, which is referenced throughout the compendium, provides an evidence-based road map that cities can use to become vibrant, hyperconnected urban centers of the future.

The pandemic has now proven, becoming a smart city is no longer enough. And for city governments and their connected institutions to unlock the full economic, social, environmental, and business value from technology, cities need to morph into hyperconnected urban centers: those that use the latest technologies to transform and interconnect key areas of their ecosystem—from roads to cars, buildings to energy grids, citizens to government, and cities to cities. By doing so, urban leaders can fuel a virtuous cycle of economic, business, environmental, and social gains, which in turn will attract additional business, talent, and investment.

To provide urban leaders with guidance, the team conducted a comprehensive study into the practices, plans, and performance results of cities already on the hyperconnected path. By categorizing cities according to their level of maturity, we were able to analyze the investments, strategies, and technologies that drive the highest ROI and the hurdles that can get in the way.

Hyperconnected cities leverage tangible returns from their investments in connecting initiatives. Employing advanced data analytics and game changing technologies such as AI, IoT and biometrics can transform and securely interconnect critical elements of an urban ecosystem. This investment in hyperconnectivity can unlock economic, business, environmental and societal benefits.

Return to Contents

A Hyperconnectivity Case Study: Newark Connected City, Newark, New Jersey

By using smart technologies in conjunction with wider and richer sets of data, cities are driving high performance across their urban ecosystems—from smart buildings and roads to smart energy grids and water systems, to smart mobility and transportation—and facilitating real-time interaction among residents, businesses, and government entities and services. Smart Livability Case Study: Newark's Future as a Connected City

New Jersey Institute of Technology (NJIT), in partnership with the City of Newark and Invest Newark, engaged ESI to craft a connected city plan for Newark, New Jersey. By becoming a connected city, Newark will leverage smart technologies to further interconnect the local government and its citizens.

The Connected Newark Plan prioritizes opportunities, draws on best practices, and defines implementation steps to help Newark realize its full potential. The plan reflects the values of Newark and its alignment with Mayor Baraka's strategic goals for the city. The plan also provides a business case for adopting connected city strategies to help shape the future of Newark.

The City of Newark, NJ is working to achieve economic, environmental, and social sustainability by becoming a hyperconnected city: those that leverage innovative technologies and forward-thinking policies to transform and interconnect key areas of their ecosystem. By doing so, Newark can fuel a virtuous cycle of economic and social gains, which in turn attracts additional business, talent, and investment to the city. Newark has begun to leverage smart technologies to further interconnect the local government and its citizens through its Connected Newark plan, which prioritizes opportunities, draws on best practices, and defines implementation steps to help the city realize its full potential, while reflecting the values of Newark and its alignment with Mayor Baraka's strategic goals for the city.



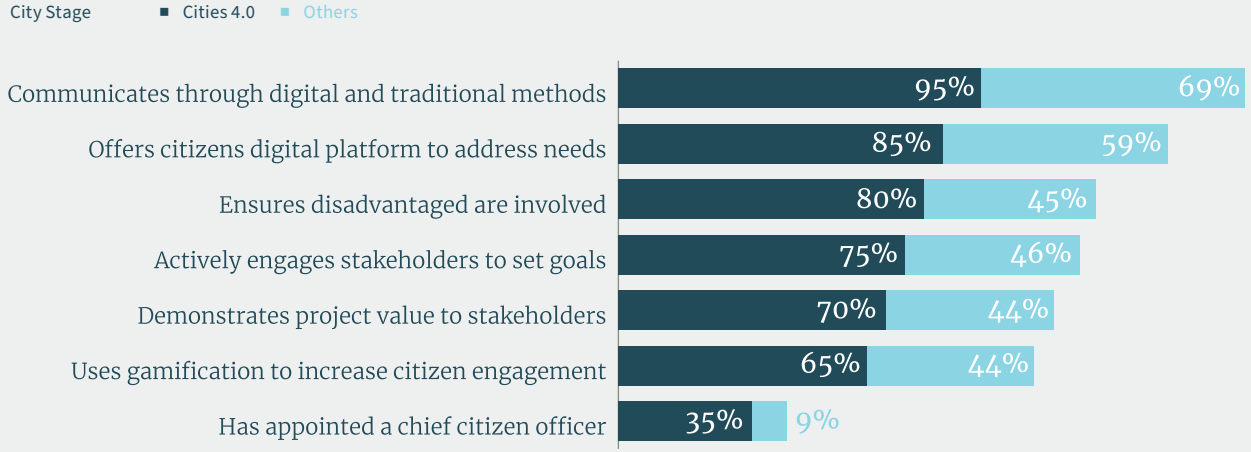
Return to Contents

Supporting the Hyperconnected Citizen

Strong citizen involvement and engagement will be the threshold upon which cities can predict the level of success of their smart city solutions. Citizens will play a vital role in determining the success and outcomes of smart technologies; they can define and shape how different technologies will be used and can identify gaps and weaknesses in their deployment. Citizens offer the unique position of seeing the ins and outs of city initiatives, and depending on the gender, age, income, race, or ability of that citizen, they can tell us if a technology is meeting the diverse needs of everyone. Citizen input and feedback is the key to innovation and its long-term sustainability.

For the 2021 project, ***Smart City Solutions for a Riskier World***, our economists and researchers defined a Smart City 4.0 as a hyperconnected city that uses technology, data, and citizen engagement to achieve sustainable development goals. Although citizen engagement is difficult to measure, the survey completed identified that citizen input is crucial. Smart Cities 4.0 are acutely aware of the needs of their citizens and use a combination of digital and traditional methods to communicate and relay information. Our research also found that some Smart Cities 4.0 have appointed a Chief Citizen Experience Officer to stay connected to citizens, and ensure that city websites, call centers, and mobile apps are all designed to be accessible to navigate while addressing citizen's needs.

How Cities Foster Citizen Engagement



Source: ESIThoughtLab, *Smart City Solutions for a Riskier World* (2021)

Return to Contents

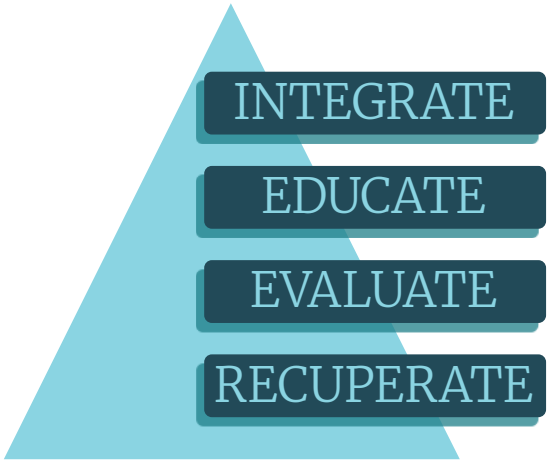
Cybersecurity

Prioritizing and Investing in Resilient Cybersecurity Networks

Governments both small and large will have to prioritize investing in a strong and resilient cybersecurity system for not only a city's safety but more importantly, its citizens. From Baltimore to Atlanta to Dublin, Stockholm, and Johannesburg, cities around the world are increasingly under cyberattacks. As the world continues to move towards more digital platforms and share their data with city services, protecting them and their data from bad actors will be important in maintaining trust between citizens and the technology systems they participate in. Cities will need to develop a solid foundation and partner with the public and private sector to ensure they are best prepared for when their systems are compromised. Cities around the world must be privy to both outside cybercriminals, privilege insiders or even human error mishaps

In ESI's 2022 article, *Smart Cities and Cybersecurity* the elements for cities to use to develop a concrete plan for evaluating and improving their cybersecurity were outlined.

Framework for Smart Cybersecurity for City and Citizen Safety



Spotlight

Driving Cybersecurity Performance

ESI ThoughtLab worked with a coalition of cybersecurity, cyber insurance, and technology experts from leading companies and associations to answer a central question: How can firms drive the best return on investment in cybersecurity in today's complex digital world? Our *Driving Cybersecurity Performance* research provides critical insights into how cybersecurity leaders organize for success, where they invest, and which technologies, processes, and analytical tools they use.

Return to Contents

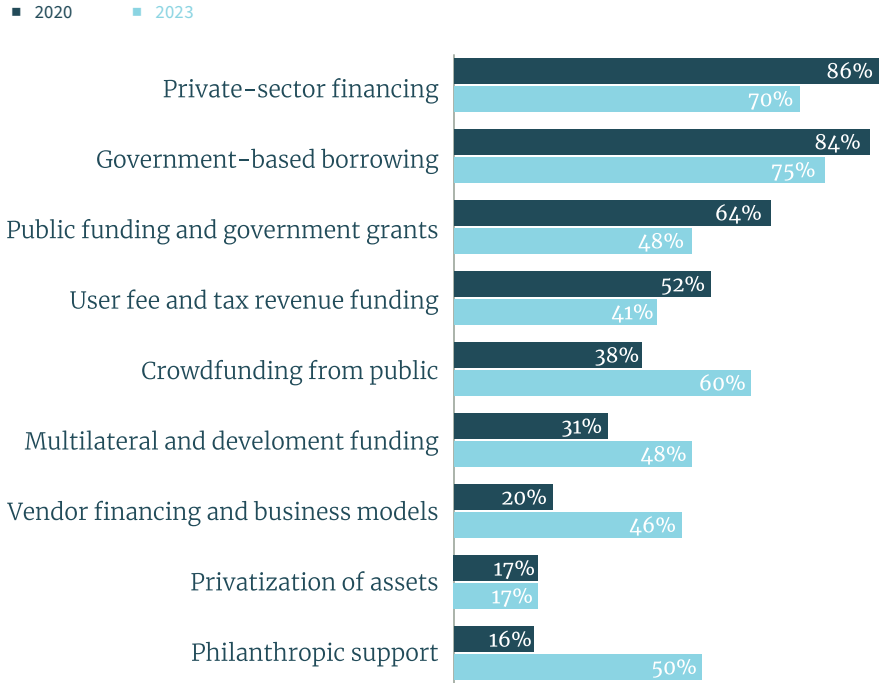
Strategic Funding

Keeping up with Fast Growing Smart City Solution Demands

According to the United Nations, 54% of the world's population lives in cities, and will rise to two-thirds by 2050. Funding the smart city solutions needed to meet the demands of growing populations will become a challenge for most cities in the future. Advanced cities will be tasked with updating their legacy infrastructure, while nascent cities will need to build smarter systems from the start. To finance these smarter technologies and services, cities will need to be more innovative in their funding techniques, sources of capital, budget approaches, and business models. Unfortunately, smart funding is one of the most overlooked foundational elements for cities starting their smart city journey. But without proper funding, a smart city program cannot succeed.

Cities are currently using or planning to use smart city solutions to cope with a vast array of urban challenges. These range from environmental, public health and safety issues to chronic homelessness, income inequity, and educational gaps. Today's cities mainly rely on private sector funding, government based borrowing and user fees and taxes but our 2021 survey-based research in ***Smart City Solutions for a Riskier World*** projects that in the coming years, crowdfunding, vendor financing, and philanthropic support will meet sustainable development goals and fill budget gaps.

Main Funding Techniques to Support Sustainable Development Goals



Source: ESIThoughtLab, *Smart City Solutions for a Riskier World* (2021)

Return to Contents

Investigating the Comprehensive Issues Facing Cities

ESI has long been the go-to firm for clients in a wide-range of industries to answer for them, “what is happening now?” ESI Center for the Future of Cities leverages the firm’s key abilities to explore topics that are essential now, compelling us to research and answer, “how can communities improve for all?”

Through ESI Center for the Future of Cities, we are looking ahead at key research focus areas that will help to determine the future success and direction of cities in the United States and around the world. Please reach out and connect with our team to learn how we can work together to shape the future of cities.

Return to Contents

Redefining Smart and Connected Cities

In the past two years, city leaders have been forced to rethink and redefine what they mean when they talk about smart cities. A confluence of interconnected health, economic, social, political, financial, and technological challenges has meant that local governments have had to be more flexible and creative as they deliver services, protect their citizens, and invest in their economic futures.

Healthy Communities
The COVID-19 pandemic has focused our attention on how we can help citizens remain safe in the face of a crippling pandemic affecting all corners of our communities.

Technology Access
The impacts of COVID restrictions—increased numbers of people working from home, schools providing distance learning, accessing government services online—have exposed the uneven access across cities and the difficulties in meeting those needs.

Economic Inequality
Where you work, how you work, access to technology, exposure to COVID, and more have contributed to extreme shifts in income levels across cities.

Sustainability and Resilience
Whether it be power grid failures, tornadoes, increased flooding from stormwater runoff, or extreme heat in our largest cities, governments and communities are being asked to address challenges at an increasing pace.

Uncertain Finances
Cities reliant on local income, sales, and property taxes are tracking how shifts in where people live and work will change that economic model. Fewer workers in offices can mean fewer lunches being bought, reductions in transit ridership, and lower office occupancy—all of which have significant financial implications.



Return to Contents

Inclusive Entrepreneurial Ecosystems

While innovation can emerge from anywhere in the world, cities represent an important location and disparate perspectives to inch our way to breakthrough. That is fundamental value proposition of cities—that concentrations of people create a virtuous cycle of discourse birthing new ideas, compelling more people and money to flow in, leading to still more engagement, energy, and innovation.

Competitive Market Locations
What do 'best places to do business' rankings tell us about what is perceived to be of value in creating attractive locations for starting and growing a business?

Employment Patterns
What do self-employment data and migration patterns tell us about where people are choosing as residents, workers, and entrepreneurs?

Utilizing the Public Sector
What public sector levers can be pulled to make more inclusive entrepreneurial ecosystems?

The Role of Anchoring Institutions
What role can anchor institutions, large corporations, and advocacy groups play in making more inclusive entrepreneurial ecosystems?

Building a Foundation for Inclusivity
What are the coalition-building mechanisms that best facilitate the collaboration needed to curate inclusive entrepreneurial ecosystems?

Prioritizing Small Businesses
What are the best grassroots efforts to support small business communities and how can they be replicated?

Creating an Index of Success
How do you measure it all so you can know who's doing well and who's not?

Return to Contents

Accessible Quality of Place

Technological disruption, public health scares, and push back against systemic disparities have all elevated the importance of and demand for quality places in urban settings. In a world where technology and infrastructure enable people and businesses to locate anywhere and collaborate virtually, cities and regions increasingly need to evaluate and refine the value proposition that they offer to their residents. In a distributed world where workers can live and work from anywhere, the very value proposition of cities as a place where diverse groups can come together at scale to learn, create, and recreate is at stake. That means that quality places will need to equitably advance accessibility, promote wellness, and foster innovation.

ESI Center for the Future of Cities wants to examine what makes urban communities attractive and inclusive places for all people, and identify clear steps that cities can take to be a competitive place of choice for future residents.

Measuring Resident Retainment
What metrics best indicate that a community or region is competitive in attracting and retaining residents?

Identifying Equity Leaders
What places are leaders at in addressing equity and inclusion in their planning and policy making?

Analyzing Quality of Place Typologies
What typologies of quality of place exist across US communities?

Measuring Public-Private and Community Work
How are cities, community-based organizations, and the private sector currently cultivating quality places through their policies, placemaking activities, and investments in real estate and infrastructure?

Identifying City Improvements
What key investments in people, places, and services can cities make to enhance their value proposition to residents, businesses, and visitors?

Identifying Quality of Place Metrics
What are the metrics city and regional leaders should use to learn if planning and policy measures are attracting and retaining residents? How are city and regional leaders addressing equity and inclusion in planning and policy?



Return to Contents

ESI Center for the Future of Cities will examine and analyze data and facts to uncover and understand cause-effect relationships, thus providing basis for problem solving and decision making.



ESI CENTER FOR THE FUTURE OF CITIES

CONTACT

To learn more about
ESI Center for the Future of Cities
Gina Lavery, Sr. VP and Lead Principal
Email: Lavery@econsultsolutions.com
Phone: (215) 717-2777

"Having the opportunity to build a more equitable and sustainable future with **ESI Center for the Future of Cities** is something we take great pride in."



Gina Lavery, Lead Principal
ESI Center for the Future of Cities

Address

1435 Walnut Street, Fourth Floor
Philadelphia, Pennsylvania 19147

Telephone

215-717-2777

Online

https://econsultsolutions.com/future-cities

linkedin.com/showcase/esi-cities/

ESI Center for the Future of Cities brings together experts in urban economics, policy, and strategy to craft innovative evidence-based research on the most pressing issues facing cities around the world. It is the thought leadership arm of Econsult Solutions, a leading consultancy headquartered in Philadelphia, PA which provides businesses and public policy makers with consulting and thought leadership services in economics, real estate, transportation, public infrastructure, development, public policy and finance, community development, planning as well as litigation support.

Acknowledgments
Photos are license-free stock by various photographers on Unsplash.com