Igniting a Smart Region Movement

A smart region is more than just big data, technological connectivity and efficiency. It's about creating an interpersonal relationship between a region and its people.

Primer - Setting the Stage

Nearly **70 percent** of the world's internet traffic moves through servers like these in Loudoun County, Virginia.

GREATER WASHINGTON
Board of Trade

Executive Summary

The Greater Washington Board of Trade is igniting a long-term Smart Region Movement to explore, deploy and expand smart concepts, partnerships and technologies across our region. We must work together to drive cultural change and build on the many public and private-sector smart city efforts already underway. We must also converge and scale these individual capabilities into a broader region-wide movement to move faster with greater impact.

With a variety of well-crafted and thoughtful regional blueprints, roadmaps, studies, reports and recommendations, we are ready to take action. The objective is to leverage the nexus between economic growth, innovation, technology and livability for all of our citizens to establish Greater Washington as a leading global innovation center, making it the most valuable region in the world.

Across the globe, emerging technologies, new business models and processes, changing demographics, rapid innovation, resource constraints and many other disruptions will continue to transform everything we do. On a local level, Greater Washington must also manage federal procurement and the need for economic diversity, along with talent, mobility, housing and other concerns. We need a smart approach to accelerate the economy, enhance quality of life and improve global competitiveness.
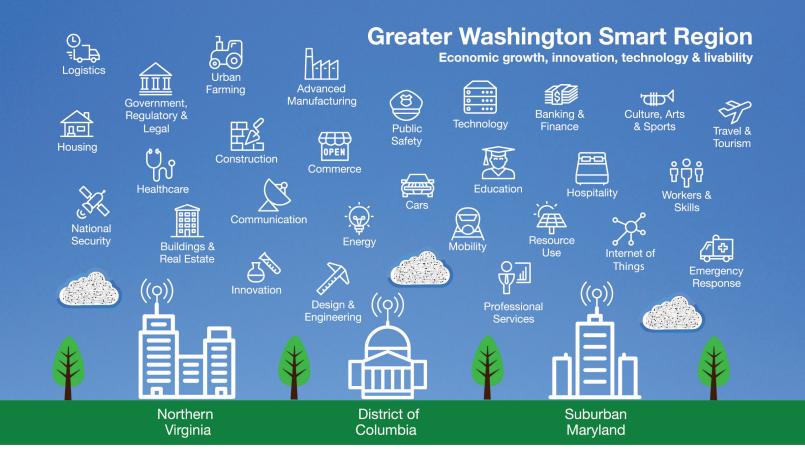
Our region must collaborate to determine a future that's most desirable rather than respond to a future dictated by external factors. The 20th century was marked by vertical excellence; with each pillar—industry, government, communities and individuals—doing what it did best. There is broad recognition that these models are no longer viable. Today, we must unite to think beyond incremental improvements to existing systems and processes and design new ones that meet multiple desired outcomes that benefit from the application of exciting new technologies.

Other regions are already way ahead. People, investment and innovation—intangible and highly mobile assets—fuel economic growth and wealth creation. So it's not enough to just collect data and deploy technologies to improve current systems and processes. Rather, we must create as many opportunities as possible to attract, grow and maximize the use of our shared resources. The following framework will guide our efforts:

- Look at assets, capabilities and hurdles from an analytical, fact-based, integrated regional view and global competitiveness outlook.

- Create an inclusive, organic, dynamic, entrepreneurial process of learning, discovery and application.

- Address innovation broadly beyond just technology to include governance, processes and models and allow growth opportunities for traditional and emerging industry sectors.

- Provide a holistic system-wide approach that allows for specialization and customization—not just as a homogenous region, but one that competes, collaborates and succeeds together.

- Define and leverage unique capabilities and areas of differentiation to ensure compatible and sustainable economic growth, security and social well-being, with a bias towards action.

How we become a smarter region will not be answered immediately. However, through many workshops, discussions, partnerships, projects, pilots and programs, we will carefully parse through the infinite possibilities that can shape our region into one that's smart, sustainable, innovative, high-tech, economically stimulating, and where we will continue to proudly call home.

Greater Washington Smart Region
Economic growth, innovation, technology & livability

Logistics · Urban Farming · Advanced Manufacturing · Government, Regulatory & Legal · Housing · Construction · Commerce · Public Safety · Technology · Banking & Finance · Culture, Arts & Sports · Travel & Tourism · Healthcare · Communication · Cars · Education · Hospitality · Workers & Skills · National Security · Buildings & Real Estate · Energy · Mobility · Resource Use · Internet of Things · Emergency Response · Innovation · Design & Engineering · Professional Services

Northern Virginia · **District of Columbia** · **Suburban Maryland**

More than ever, Greater Washington is coming together to address common challenges and opportunities to become a "smart" region, leveraging the link between economic growth, innovation, technology and livability. Combining these elements will not only make our region smarter, but the most valuable in the world.

The Greater Washington Board of Trade (GWBOT) is convening and connecting key thought leaders from across the region and beyond to help shape, develop and drive a Smart Region Movement—fostering regional collaboration to unleash innovation, grow investments and attract talent.

We must work together to drive cultural change and balance creativity and spontaneity with technological efficiencies to maximize our shared resources. This needs to be a holistic approach—top down and bottom up—to promote economic and social well-being while meeting the national security needs unique to our region. We recognize that many public and private sector efforts already involve smart concepts. **Now is the time to converge these individual capabilities into a broader region-wide movement with greater impact—where the whole is greater than the sum of its parts. With a variety of well-crafted and thoughtful regional blueprints, roadmaps, studies, reports and recommendations, we are ready to take action.**

The concept of a "smart city" may conjure images of spotless, high-tech urban living: silent driverless electric vehicles zipping through traffic-free streets, sleek energy-efficient buildings, watches synced to real-time schedules for public transportation, solar-paneled homes controlled by Nest learning thermometers, neighborhoods cloaked under an invisible web of 5G connectivity. Everything feels shiny, new and exciting.

In fact, some greenfield developments have tried to achieve this vision, such as Songdo, South Korea; Masdar, Abu Dhabi; or Ordos, China. Built from scratch, these developments are automobile-light, with computer-driven streets, green spaces and ambitions to carbon-neutral futures. But they have all fallen short in various ways to

capture value, especially if no one wants to live there. Being a smart region is far from simply achieving the quiet hum of digital utopia. It doesn't have to start from scratch, nor be a facsimile of another smart region. The goal is to create effectiveness, make an area more livable and, thus, desirable. To get there takes a dynamic and energetic mobilization effort, a movement if you will, requiring ingenuity and flexibility in the ever-changing world of technology. Most importantly, it needs people of all backgrounds and expertise to share ideas, processes and commitment, from academia to entrepreneurs, grassroots to government, millennials to boomers, start-ups to corporate giants; basically, inclusive and adaptive to all strata of our community. Cultural norms must change and adapt.

There are many versions of smart cities being developed: green cities, sustainable cities, global cities, intelligent cities, digital cities, wired cities. Any of these provide an opportunity to connect people not just virtually, but personally and strategically, across all incomes and education, with a common goal to provide the highest quality of life. Our region must be willing to set up living laboratories that are scalable and exist in constant beta mode, and be able to take failure in stride, while learning and improving. Then demonstrate to the general public the benefits of welcoming these changes into their existing lives.

The Greater Washington region is no different than other parts of the world in its desire and need to be smart. Yet the region is inimitable for the sheer reason that it's made up of three major jurisdictions:

the District of Columbia, suburban Maryland, and Northern Virginia, plus their individual cities and/ or county-based governments. It's also home to the federal government and national command center. Nonprofits and charitable organizations are also densely concentrated here. Tourism and hospitality are huge economic drivers. Our workforce is highly educated and unemployment is low. The region includes top universities and satellite campuses. It operates in overlapping, concentric circles, but also in its own separate entities, sometimes in unison, sometimes in complete contrast. For example, driving the Beltway might be a seamless activity (depending on the time of day), but opening several locations for the same restaurant across the three areas is not and has different requirements for each jurisdiction.

What is a Smart City/ Smart Region?

The GWBOT is interested in employing "smart" initiatives broadly to make our region more livable, attractive and valuable. These initiatives will vary depending on the individual circumstances of various factors within our region. In theory, a smart region blends technology and community with social good to curb the issues presented and to diffuse tensions. It can range from reducing red tape to stabilizing housing prices or encouraging entrepreneurial efforts and economic growth. And while there's a need for regional platforms and approaches to benefit from economies of scale, there is also a need for local originality that supports individual communities. Thus, technology is not necessarily always part of the "smart" formula as much as the necessity for innovative ideas.

Copenhagen, Denmark

This Scandinavian city currently leads the Siemens Green City Index for Europe for good reason: It has an ambitious carbon reduction plan to reach carbon neutrality by 2025, and currently has one of the lowest carbon footprints worldwide.

What makes a region "livable?"

Creating that livable community is a delicate balancing act, juxtaposing the needs of one individual with that of another's harmoniously. Like smart cities, what's considered livable differs across the board. Elements include:

Attractive business opportunities and job options

Ongoing economic growth and investment

Desirable talent pipelines

Ease of transportation and short/fast commutes

Safe neighborhoods and housing affordability

Good public schools and continuing educational opportunities

Walkability

Clean air and water

Availability of parks and recreation

Access to groceries and living basics

Access to local government

Low inequality

Culture

Spontaneity and creativity

Low crime

Many initiatives worldwide and locally address and define what constitutes "smart." Such ideas include:

Urban mobility. The concept involves moving people seamlessly and safely across the region through reliable and on-time public transportation, faster travel times, reduced traffic, multiple public transportation options, shared ride and vehicle services, shared bike programs, separate bike/ pedestrian travel lanes, incentives for alternate travel, carpool lanes, and express toll lanes. Recent successes to improve and fund Metro, as an example, have been a priority for all of Greater Washington, as it remains the most dependent choice of transit.

Mixed-use developments. Before Pike & Rose in North Bethesda emerged, no one lived in that neighborhood. Today, it has 1,500 residents in its chic new architecture, with as many as 20,000 projected for the future. That's because Pike & Rose went from generic strip malls to a revitalized, pedestrian-friendly hip living, shopping, dining and working area. It's a prime example of smartly interspersing retail and offices with residential and green spaces to improve walkability, energize neighborhoods, grow the local economy and reduce carbon emissions.

Environmental sustainability. Smart environmental initiatives integrate economic viability with environmentally responsible policies. For example, cleaning up the Anacostia River is more than just about saving fish, it brought back recreational areas, employment and economic growth.

Economic sustainability. Drawing start-ups and encouraging businesses to grow is an essential component of the region's economy. For that reason, there are micro-lending programs for companies that can't get a loan from a regular bank. Using incentives can help start-ups grow, while attracting other companies to open offices or headquarters in the region.

Smart government. Smart governing is critical to achieving any kind of smart regional success. Examples include increasing online transactions, engaging citizens and opening communication channels with elected officials, receiving text notifications, filling out applications easily, using social media to communicate with citizens and mining big data to improve citizen experiences. It also applies business and technological workflows and models to shape policy. Arlington County implemented ConnectArlington, a high-speed network that initially linked county and school buildings to meet the growing demand for digital services through the use of a dedicated dark fiber optic.

Public health. Easy and affordable access to healthy foods and grocery stores is just one of many smart public health initiatives. For instance, DC Urban Greens opened urban farms to grow and sell fresh produce to residents east of Anacostia, an area dubbed as a "food desert" because of its sparse food shopping options. Other smart public health initiatives include clean air and water monitoring through use of sensors, availability of hospitals and healthcare, low crime, recreational spaces and activities, safe pedestrian paths and fitness programs.

Connectivity. Thingstitute is Montgomery County's Internet of Things living laboratory, where, among other programs, it is connecting bus stops with sensors and data collection to monitor air quality, vandalism, traffic counts, residents in distress and more. Building, enhancing and expanding the network of physical devices, vehicles, home appliances and other items embedded with

BUILDING CONSTRUCTION IN ROSSLYN

Photo by Sam Kittner

electronics, software, sensors and connectivity enables these objects to connect and exchange data to improve service and reliability.

Smart infrastructure. Cities have traditionally been built around core geographic elements and built up with civil infrastructure such as a port, a dam, a mine, a fort, or at an intersection on a trade route. Integrating with various regional smart infrastructure initiatives will ensure organized systems development. One example: Virginia ports and Baltimore ports have multiple initiatives to improve throughput and efficiency, thereby increasing trade for the region; and Dominion Energy is working on strategies for electrification of transportation initiatives for the region.

Detroit

The Motor City is driving full-force into a revitalization effort through Detroit Future City, an aggressive and massive city-wide public engagement effort. Through numerous town hall meetings, surveys and conversations, it gathered strategies, ideas and approaches to use the city's land, build vibrant neighborhoods, develop economic prosperity and maintain community engagement upon which it depends heavily for success.

Atlanta

Among its several initiatives for SmartATL is the North Avenue Smart Corridor, a testing ground for 100 IoT-connected sensors and data collectors. One pilot project is an adaptive traffic signal control system that uses artificial intelligence to gather information. For example, a thermal imaging camera can detect the number of pedestrians (non-bicycle) at any intersection, which can adjust the signal timing and nearby traffic lights. The city is working with Georgia Tech to analyze data.

How is Greater Washington already smart?

The GWBOT knows there are many existing initiatives and programs to smarten the region. There are numerous bike lanes and bike shares, underground sensors to manage wastewater and runoff, incubators to jump-start businesses, improvements to Metro, and efforts with the region's universities to develop curriculums that fill skill gaps in local employers. Programs include:

Smarter DC Initiative: The city is focusing on examining different technology and intelligent city infrastructure to improve quality of life and address city challenges. It is a member of the MetroLab Network, which is a consortium of 35-plus city-university partnerships worldwide focused on bringing data, analytics and innovation to city government.

Montgomery County's Replicable Smart Cities Technology Grant: Through a grant from the National Institute of Standards and Technology (NIST), the county will focus on interoperable technology solutions for air pollution, flood prediction, rapid emergency response and improved citizen services.
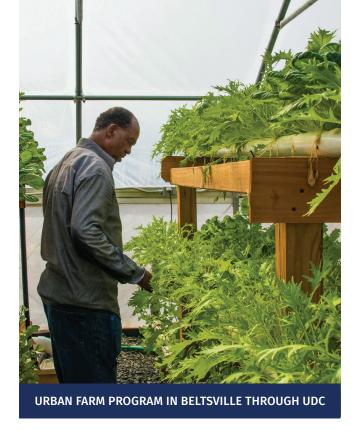
Virginia in 2018 Readiness Challenge Grant: Through the Smart Cities Council, the grant will help Virginia formulate its smart initiatives, including state-wide broadband access, cybersecurity and privacy plan, interoperability standards and sustainable funding for smart projects.

Virginia Smart Communities: Formed by an executive order by the governor, this executive work group is developing best practices, policies, processes and technologies to equip Virginia's communities with the resources, support and tools to become sustainable smart communities across the state.

Still, there is much more to do to demonstrate smart leadership and become more globally competitive.

CAPITAL BIKESHARE

Photo by Kevin Royalty

URBAN FARM PROGRAM IN BELTSVILLE THROUGH UDC

Often, smart cities projects involve collecting data and deploying technologies to improve current governmental management systems and processes. However, combining an existing process with new technology usually results in a very expensive process. We must think beyond incremental improvements to existing systems and design new ones that meet multiple desired outcomes that can benefit from the application of digital technologies. It's not just what we do. It's how we do it. The following framework could serve as a guide:

- Look at assets, capabilities and hurdles from an analytical, fact-based, integrated regional view and global competitiveness outlook.

- Create an inclusive, organic, dynamic, entrepreneurial process of learning, discovery and application.

- Address innovation broadly beyond just technology to include governance, processes and models and allow growth opportunities for traditional and emerging industry sectors.

- Provide a holistic system-wide approach that allows for specialization and customization. Not just as a homogenous region, but one that competes, collaborates and succeeds together.

- Define and leverage unique capabilities and areas of differentiation to ensure compatible and sustainable economic growth, security and social well-being with a bias towards action.

How does the Greater Washington region become smarter?

The GWBOT's multi-year Smart Region Movement will explore, evaluate, create and deploy smart concepts, practices and technologies across the area while seeking opportunities to scale existing projects. Emerging technologies, new business models and processes, changing demographics, rapid innovation, resource constraints and many other disruptions will continue to transform everything we do. And we must be intentional in leading this exciting revolution on a path we desire, rather than be led by it.

Cartagena, Colombia

The Smart Everyday Nighttime Design project introduced street lighting in otherwise dark streets, reducing crime and creating safer neighborhoods that also developed a vibrant economy of nighttime cafes and restaurants. The lighting projects also became a unique display of art, each expressing the feel and taste of the different neighborhoods.
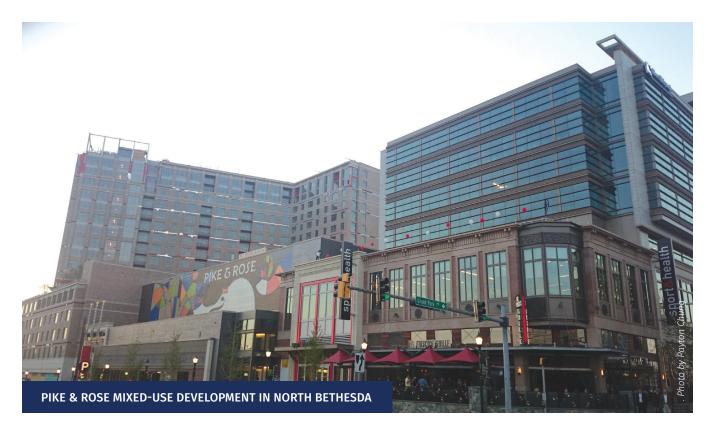
India

The Ministry of Urban Development introduced the 100 Smart Cities Mission challenge to help cities reach smart city status. Each city had to interpret "smart" and put together a plan based around it, and winning cities received funding to implement their plans. The idea is to set these cities up as models for neighboring jurisdictions to follow.

Collaboration and partnerships are key to becoming a smart region, and it's important to organize around several approaches, such as:

1   Establish our region as a leading innovation center for determining, implementing and achieving smart region goals.

2   Develop expertise and thought leadership on the intersections of urbanization, innovation, energy, job creation, resource use and the environment, economic growth, quality of life and national security to provide a complete, systemic view of regional economic expansion and social well-being.

3   Integrate convening power with research and analytical capabilities to better inform government officials, business leaders and others on the impacts of proposed policy solutions and implementation strategies.

4   Become an incubator for conceiving and launching start-up pilots, partnerships and programs to implement smart region strategies.

PIKE & ROSE MIXED-USE DEVELOPMENT IN NORTH BETHESDA

. Photo by Payton Chung

GREATER WASHINGTON IS BECOMING ONE OF COUNTRY'S TOP CLUSTERS FOR BIOTECH

This process will be organic and iterative, and improve with new learning. The GWBOT's Smart Region Movement provides context to support and integrate efforts across the region. The intellectual capital and experiences created here and through other initiatives on a regional, national and global level will inform our activities. Potential areas of focus will represent deep horizontal and vertical connections among industry, government, communities and people, intersecting with sustainability and national security, including:

- Emerging best practices and lessons learned.

- Technology and invention: IT, networks, data, systems, devices, equipment.

- Energy and natural resources.

- Physical and digital infrastructures, including buildings.

- Mobility and communications.

- Cyber economy and security.

- Social engagement and livability.

- Governance, management, legal and regulatory structures and processes.

- Full life cycle innovation pipelines.

- Skilled workforce: building, attracting, retaining workers / management, career and technical education and training.

There are many effective ways to gather and share knowledge and skills pertaining to the smart movement. Each should be approached in a thoughtful, rather than casual manner, to ensure that strategies are being advanced and information is carefully captured. The GWBOT will use a variety of tools and activities:

Strategic conversations: One-time or ongoing series, depending on content and desired outcomes. Connect and convene to incorporate content expertise with provocative ideas to create and apply new understandings.

Analytical research and studies: Briefing papers capturing insights from dialogues along with original in-depth analysis on specific topics, including the use of High Performance Computing (HPC)-based modeling and simulation analytics.

Case studies and best practices: Examples from other efforts while developing our own best practices and case studies in this region.

Pilots and demonstrations: Opportunities to create new start-up organizations and programs.

Partnerships: Development and enhancement of key partnerships across the region to ensure both vertical and horizontal integration.

Boston

Its Smart Government initiatives allow citizens to complete more than 150 transactions online. Its new apps also empower citizens to be more engaged within their community and extend the civic-sensor network via smartphones to help collect data on traffic and locate gunshot sounds, for example.

Let's get started

Jonathan Raban wrote in his book, Soft City, "We need—more urgently than architectural utopias, ingenious traffic disposal systems, or ecological programs—to comprehend the nature of citizenship, to make serious imaginative assessment of that special relationship between the self and the city; its unique plasticity, its privacy and freedom."

This may be the first important step when considering Greater Washington's approach to becoming a smart region. More than just adding bells and whistles is cultivating a symbiotic relationship between the region and its residents, what it offers people and what people can give back in return.

How we become a smarter region will not be answered immediately. However, through many workshops, discussions, projects, pilots and programs, we will carefully parse through the infinite possibilities that can shape our region into one that's smart, sustainable, innovative, high-tech, economically stimulating, and where we will continue to proudly call home—the most valuable region in the world.

Greater Washington Board of Trade

The Greater Washington Board of Trade is the premier regional business organization representing all industry sectors. Pro-business and bipartisan, the Board of Trade is shaping and advancing our regional economy, with a focus on improving connectivity and making better use of existing resources. The Board of Trade addresses business concerns that stretch across the District of Columbia, suburban Maryland and Northern Virginia, with a focus on expanding our skilled workforce, enhancing innovation, attracting investment and fostering regional collaboration. This work is backed by sound research and more than 125 years of experience.

Igniting a Smart Region Movement

The Founding Partners for the Board of Trade's **Smart Region Movement** are Accenture, AECOM, Kaiser Permanente, Pepco and Verizon. In addition to all of our members being involved, we have organized a diverse and expert advisory team of members and others to help shape the substantive aspects of the Movement, as well as provide ongoing guidance and support. There are and will be opportunities for other organizations to join as partners or advisors.

Founding Partners:

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