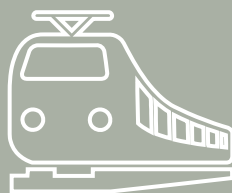


CROSSOVER

URBAN WATER, TRANSPORT,
AND ENERGY:

Transforming Municipal Services and Urban Infrastructure



- 3** Introduction
- 4** The Transformational Potential of Public-Private Partnerships for Urban Infrastructure
- 6** Governance Frameworks for Urban Sustainability
- 8** Strategies for Flexible Urban Infrastructure
- 11** Big Data, Big Benefits?
- 13** Engaging Urban Citizens
- 15** Policy Implications and Actionable Ideas
- 17** Conclusions
- 18** Workshop Participants



INTRODUCTION

Policymakers, practitioners, and academics working in cities are often siloed off from one another due to the complexity of their area of focus. For example, urban water specialists are rarely in contact with their counterparts in the urban energy or transport sectors. Moreover, the manner in which policymakers consult with experts reinforces the silos that separate key actors in urban development.

In an effort to bridge these gaps, the Wilson Center, together with Meeting of the Minds, and the Johnson Foundation at Wingspread hosted a workshop entitled, “Crossover—Urban Water, Transport, and Energy: Lessons Learned from Multiple Cities,” engaging urban-focused leaders from multiple sectors to identify new opportunities for cities to transform municipal services and critical urban infrastructure.

From June 23–25, 2015, a group of 25 leading urban thinkers from academia, the public and nonprofit sectors, and from the business and technology communities devoted to urban water, energy, and transport gathered at the Johnson Foundation at Wingspread

in Racine, Wisconsin to share insights and innovative approaches, identifying “cross border” links in policy, technology, and practice. Workshop participants discussed alternatives to fragmented and sectoral approaches that plague cities, seeking solutions for intractable problems related to core urban systems—water, energy, and transport.

Addressing urban challenges that lay ahead will require accelerating cross-sectoral learning within and between 21st century cities. Given the scale and costs associated with deferred investment, cities must keep pace, finding more efficient ways to manage infrastructure and processes. It was in this spirit that Crossover participants spent two days exploring issues within the core topics of: potential of public-private partnerships (PPPs), governance frameworks, strategies for flexible infrastructure, big data and technology, citizen engagement, and strategies for implementation. Discussions led to both divergent views and common ground, uncovering valuable insights along the way.

The Transformational Potential of Public-Private Partnerships for Urban Infrastructure

? **KEY QUESTION:** Some advocates for new approaches to urban infrastructure think that PPPs in energy, water, and transport are unlikely to succeed because the fundamentals that drive change are not addressed in a PPP format. How and when can a transaction between government and private sector be transformational?

SETTING OUT KEY ISSUES

From the perspective of investors, infrastructure is not just a facility or system rooted in place that serves a particular community or need and that has a large long-term capital component, but it must also offer a regular or stable cash flow. The current situation regarding infrastructure in the United States is dire: the 2013 Report Card for America's Infrastructure by the American Society of Civil Engineers gives the country a D+ grade for infrastructure investment (with \$3.6 trillion required to improve to a B grade).¹ Needed improvements cross all sectors: water, electricity, waste treatment, and transportation. Private fund companies are willing to invest, but only where there can be risk analysis and long-term revenue. Increasing certainty and stability is crucial for attracting investors. Drew Murphy, Senior Managing Director of Macquarie Infrastructure and Real Assets, Inc., recommended strategies to promote infrastructure financing, including: identifying revenue streams suitable for PPP processes; educating local officials and other government actors about the benefits of partnering with the private sector; and developing a clear and agreed upon governance framework for PPPs.

Emphasizing the transformative possibilities for addressing these issues, Scott Stallard, Vice President for Advanced Technology/Solutions Development for Power Generation, Water, and Smart Cities, and Director of Smart Analytics, Smart Integrated Infrastructure at Black & Veatch, noted that the complexity of systems and the changing value of assets are two primary factors underlying a need to move from project-centric thinking to a new, broader mindset. Technology can be a facilitator within this context, both to help view performance and to provide the agility needed to respond to complexity, benefitting both private and public participants. Stallard suggested moving from a project-centric focus to a portfolio approach as the basis for a new financial model.

Julie Kim, Senior Fellow at the New Cities Foundation, addressed possible opportunities underlying the challenges of financing PPPs. Distinguishing funding from financing, Kim noted that in spite of available financing, there are not enough bankable projects, largely due to an institutional knowledge gap and lack of revenue. It is primarily the users and taxpayers who end up bearing the burden. However, reducing costs through a life cycle approach, operations and maintenance efficiencies, and financing can help decrease the need for funding. PPPs pose additional challenges, including: difficulties in investor benchmarking; misaligned incentives; a need to temper return

¹ American Society of Civil Engineers (ASCE), *2013 Report Card for America's Infrastructure*, <http://www.infrastructurereportcard.org/>

expectations; gaps in public perceptions; the need for public sector PPP literacy; and the need to streamline development finance. Opportunities include increasing the role of International Financial Institutions; leveraging (recycling) brownfields; and exploration of innovative user-investor funding models.

CORE THEMES

There has been a consistent underfunding of infrastructure in the United States over the past few decades. This stands in stark contrast with investments in China and India, as well with previous eras in the United States. The problem illustrates the current unwillingness of American society to pay its own way.

There is also a cognitive dissonance regarding what is wanted and how much should be paid. Figures attributed to perceived “needs” must be approached with caution and backed by data. Challenges such as free riders and lack of trust can sabotage future needs. There is often an imbalance in the return to the private and public sectors for their contributions.

The issue of how much public sector risk financiers are willing to assume must also be considered. Although some risk is acceptable, a certain level of return on investment is required and the public sector needs to take on risk associated with policy decisions. New ways of measuring risk must be developed, particularly in light of climate change.


Formal processes for communication would facilitate dialogue across silos, enhancing communication and building trust between sectors. Although PPPs are often viewed through a strictly transactional lens, attention should also be given to when, where, and how collaboration and engagement between companies and cities happen.

Financial mechanisms can be important levers for transformation. Most companies are not willing to take on tangential projects or indirect business opportunities. Taxpayers and users are often left paying for what is not taken up by the private sector. Tax regimes are not tied to actual usage, so users who do not see direct value are less willing to pay more. As a result, “you get what you pay for.”

Many aspects of PPPs for infrastructure are prohibitively complicated and uncertain. Regulatory frameworks can streamline processes and make permitting less complex. A standardized framework or tool-kit would be welcomed, particularly by municipal stakeholders.

Finally, without a clearly defined vision, financing often becomes the objective—instead of the tool—and unnecessary projects continue to be undertaken simply because they can be financed. Creating a common vision based on engagement with citizens and the private sector would allow cities to provide greater context for bids and proposals.

Governance Frameworks for Urban Sustainability

 **KEY QUESTION:** Is achieving urban sustainability going to require a radical departure from the ways that local governments are structured and operate?

SETTING OUT KEY ISSUES

The projected doubling of the global urban population by 2050 heightens the urgency for finding solutions that foster urban sustainability. But what kind of change is needed? There are significant differences between incremental and transformative change toward a goal. Nils Moe, Managing Director, Urban Sustainability Directors Network (USDN), suggested that continuous improvement through incremental innovation requires periodic advancements via disruptive innovation to bridge the gap between the current and desired state. Alternatively, continuous improvement can be transformative if the slope representing positive change is steep enough and the pace of progress has a high degree of certainty. Finance is a key factor that limits incremental change.

There are critical differences between old and new systems of governance. In old systems, after the creation of policy, process, and systems, users are involved and the system ends in stasis. New governance processes start with users and then move to service design based on user needs; systems are developed on design principles, policies created or modified, and then cycle through a feedback mechanism that ensures user needs are supported.²

Calling for radical change in urban sustainability by reinventing cities, Nils Moe, detailed the work of the USDN to help municipal sustainability leaders

share and implement best practices. The USDN also works toward structural shifts in approaching PPPs and financing, as well as regulatory reform and data access. Most current sustainability directors are the first in their roles and have to take on all sustainability related issues with little funding, often challenged to do more with less.

Melanie Nutter, former Director of the San Francisco Department of Environment, detailed the work of the USDN's Smart and Sustainable Cities group, including the creation of a resource guide on accelerating innovation that showcases smart city strategies to advance sustainability goals in 12 North American cities.³ The next phase of the project is to create a toolkit and framework for sustainability managers to better integrate technology and data into their work and to extract best practices from innovation labs. Three major challenges facing cities working to ensure a sustainable future are: innovation in modernization as a precursor to transformational change; innovation in government cultures that are not attuned to it, and; change management and development of Key Performance Indicators (KPIs) for tracking sustainability impact.

CORE THEMES

Bringing together sectors to approach cities as systems can address the disconnect between policies, permitting, and needs. Fear of decision mak-

² See TED talk by Jennifer Pahlka, Founder and Executive Director of Code for America: http://www.ted.com/talks/jennifer_pahlka_coding_a_better_government?language=en

³ See "Getting Smart About Smart Cities USDN Resource Guide" http://sustainablecommunitiesleadershipacademy.org/resource_files/documents/Smart%20Cities%20RG%20%282%29.pdf

ing or of criticism compounds delays and paralysis. Communication and engagement, particularly between utilities and city governments that traditionally have limited or strained conversations, are critical to overcoming confrontation and stasis. Using multi-stakeholder dialogue to find common ground opens the possibility for cities and utilities to approach regulators together to request rule changes.

Adding in the voices of technology companies as enablers and citizens as users can further advance dialogue. Innovation labs are another example of public-private sector engagement, such as Boston’s Green Ribbon Commission, which convenes leaders from the city’s leading economic sectors to develop shared strategies for facing climate change, providing advice and counsel on the design and implementation the city’s Climate Action Plan.⁴ Education and involvement of public utility companies is necessary. Cleantech San Diego, a non-profit member organi-

4 See <http://www.greenribboncommission.org/>

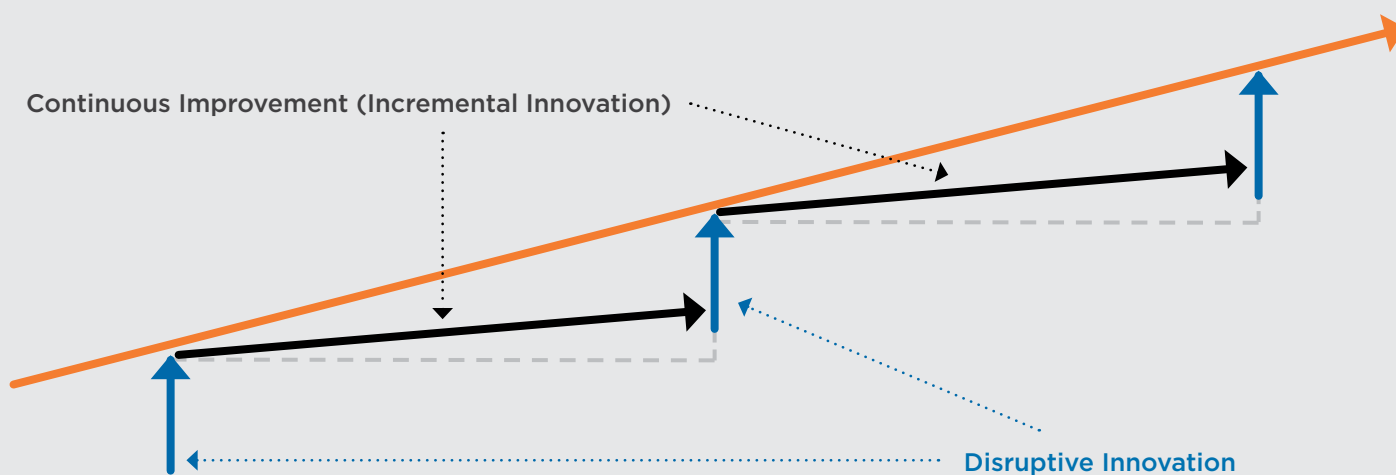
zation, has worked to bring together the private and public sector at a high level *before* a problem or opportunity has even materialized, involving companies in broader conversations.

There are significant differences in “city”, “urban”, and “metropolitan” areas. Regional coordination is necessary for non-confined organic systems such as energy, water, and air. Examples include elected regional government in Portland and regional coordination on infrastructure in Washington, DC. Another uniting factor could be “disaster-sheds”—regions with shared risk of natural or other disasters (akin to shared water resources in a “watershed”)—which might create less politicized opportunities for chief resilience officers and others working on regional infrastructure.

Issues of social equity are a core concern in thinking about governance frameworks for urban sustainability. Policies for urban adaptation and resilience must put people first.

CONTINUOUS IMPROVEMENT VS. DISRUPTIVE INNOVATION

Continuous improvement can be transformative if the **slope** is steep enough and the pace of progress has a high degree of certainty.



Source: Nils Moe, USDN

Strategies for Flexible Urban Infrastructure

? **KEY QUESTION:** Infrastructure systems are designed to be solid and long-lasting, and investments can require decades. How can utilities adjust to the new realities of the 21st century with flexibility and data-driven decisions to adapt to big shifts such as an altered financial landscape or climate change?

SETTING OUT KEY ISSUES

The current gap in infrastructure funding means either new investment or less will be done. Although there can be resistance to change and to private sector involvement, PPPs can bring opportunities, particularly for the use of data and innovative technology. Such creative partnerships are a part of the solution to bridge the infrastructure funding gap.

Ken Kirk, Executive Director, National Association of Clean Water Agencies (NACWA), provided an overview of his organization, which was created to ensure that funds committed by Congress to meet water treatment deadlines in the 1970s were directed to large cities. According to Kirk, the Clean Water Act has been successful but it has not addressed the needs of the 21st century, particularly for agriculture and climate change. The Utility of the Future offers a way to explore issues, innovative technologies, and critical actions for utilities to improve resource recovery.⁵ While this concept is gaining traction within the sector, the transformation of cities must be approached as a long-term process.

Innovating old high-cost fragmented water infrastructure requires city redesign for integration, but it is an opportunity to change the paradigm in cities, remarked Eileen O'Neill, Executive Director, Water Environment Federation (WEF). Mixing centralized, decentralized, and modular approaches is necessary to avoid “white elephant” projects. Net-energy production treatment plants, effluent reuse, less rigid European permitting that allows innovation, and public amenities designed in conjunction with water facilities are just some examples of success.

CORE THEMES

Water is necessary for energy development and delivery, just as energy is required for water delivery. There are parallels between the water and energy sectors, such as the decentralization of distribution and recovery, and issues related to local supply (i.e., rainwater and solar). For both water and energy, changing usage disrupts standard infrastructure and revenue models that have relied on experts at centralized facilities. New forms of data collection are challenging utilities to become more accountable. Mimicry of natural systems is another disruptive innovation—green infrastructure offers new opportunities, particularly for application in the water sector.

5 See NACWA, WERF, and Water Environment Federation, “The Water Resources Utility of the Future: A Blueprint for Action,” <http://www.nacwa.org/images/stories/public/2013-01-31waterresourcesutilityofthefuture-final.pdf>; NACWA, “Water Resources Utility of the Future: A Call for Federal Action,” <http://www.nacwa.org/utility-of-the-future/files/assets/basic-html/index.html#page1>



Blue Plains wastewater treatment plant courtesy of Flickr user erin m

D.C. WATER

The District of Columbia Water and Sewer Authority (DC Water) is using public-private partnerships and innovative financing mechanisms to upgrade infrastructure while maximizing environmental and financial benefits.

In partnership with the Pepco energy utility, raw sewage at the Blue Plains facility is safely recycled into a nutrient rich fertilizer while using digester gas to produce renewable energy for DC Water's operations. Through another partnership, Veolia Water will implement operational and process improvements at the Washington Aqueduct. DC Water is also a leader on data collection and analytics, for example, using sensor technologies to ensure early notification of problems.

Green infrastructure is being used to reduce combined sewer overflows through the Clean Rivers Project. Recently issued municipal "green" century bonds, to be repaid over 100 years, help finance such initiatives. In 2013, seven teams submitted designs for DC Water's Green Infrastructure Challenge. Winning contracts selected in 2015 went to CH2M for the design of the Kansas Avenue Green Infrastructure Parks Project and to Nitsch Engineering for the Kennedy Street Green Infrastructure Streetscape Project.⁶

⁶ See: District of Columbia Water and Sewer Authority, <https://www.dewater.com/greenchallenge>; Water Environment Federation, <http://stormwater.wef.org/2015/06/dc-water-announces-green-infrastructure-agreement-training-program/>; <http://stormwater.wef.org/2015/01/obama-administration-announces-water-finance-center-new-municipal-bond/>



A look at the status of the South Ferry 1 subway station courtesy of Metropolitan Transportation Authority of the State of New York

With regard to pricing, there is not a single model to fit all customers. Most water pricing currently operates with fixed charges and a flat fee, based on service size, distributed across the customer base. However, like the energy industry, time of use is being adopted. If water were priced high enough so that the entire cycle worked, it would incentivize the water sector to work with the energy sector to reduce use.

Resiliency planning and post-disaster rebuilding offer important opportunities for rethinking urban infrastructure. Some cities, such as New Orleans after Hurricane Katrina, rebuilt in a different way whereas others, such as New Jersey after Hurricane Sandy and New Zealand after the Christchurch earthquake, faced challenges in creating radically different rebuilds. The multiple small-scale, decentralized systems operated

by Natural Systems Utilities were able to provide service almost immediately after Sandy. In some cases private utilities performed better after Sandy because, in contrast to municipal utilities, they planned beyond their boundaries.

Education and idea sharing, such as work by the Department of Energy on the water-energy nexus⁷ and by the U.S. Water Alliance, play a crucial role for advancing holistic approaches for more resilient water and energy systems.

7 U.S. Department of Energy, *The Water-Energy Nexus: Challenges and Opportunities*, June 2014, <http://www.energy.gov/sites/prod/files/2014/07/f17/Water%20Energy%20Nexus%20Full%20Report%20July%202014.pdf>

Big Data, Big Benefits?

? **KEY QUESTION:** How are data-powered breakthroughs reshaping the delivery of vital urban services such as energy, water, and transport? Are new opportunities or better outcomes being created for consumers/citizens, utilities, and government regulators?

SETTING OUT KEY ISSUES

There are many opportunities for technology to drive efficiencies and help cities with their sustainability goals, targets, and policies. However, there are risks related to the safe and secure use of advanced networks. How are appropriate tools being developed to meet needs in the urban context?

Melanie Nutter provided an overview of San Francisco's ambitious carbon reduction goals. The city's carbon profile is similar to other urban centers, with 52% coming from buildings, 43% from transportation, and 5% from waste. The "0-50-100" Climate Action Plan sets out a goal for zero waste, 50% of all trips shifted to non-automobile transportation, and 100% renewable energy. The city's green building program includes mandatory LEED certification and, for the past two years, an ordinance for energy reporting on all existing commercial buildings over 10,000 square feet. According to Nutter, the EPA's Portfolio Manager tool is used because data is difficult to get directly from utilities. Now many other USDN member cities also have disclosure ordinances.

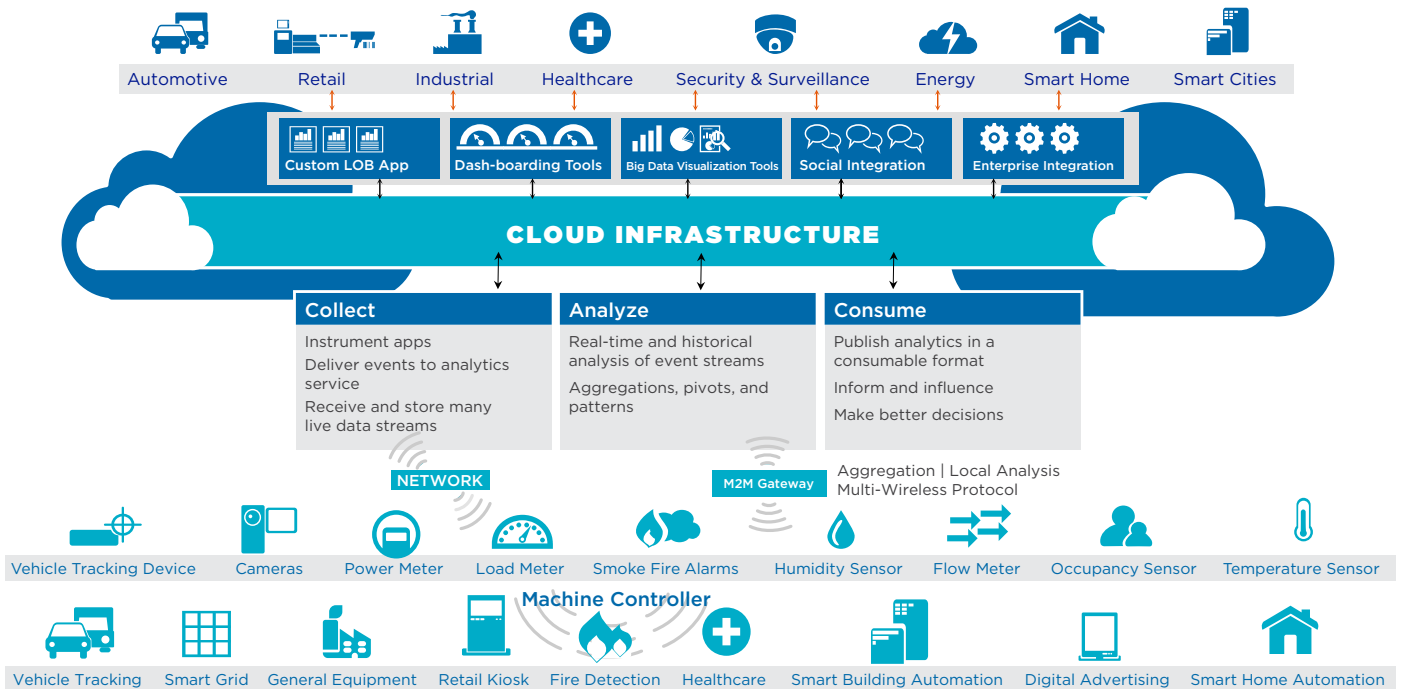
Scott Mauvais, Director of Civic Innovation at Microsoft, provided a synopsis of sensor network architecture as it pertains to the Internet of Things (or Internet of Everything). He outlined three main steps in translating data from things into a usable format: sensors send data; networked aggregators receive data; and finally applications conduct analysis and respond appropriately, such as sending an alert when there is

a fault. He pointed out that as more intelligence gets built into infrastructure, the digital realm becomes physical, requiring increased consideration for security.

Marc Collins, Senior Principal Consultant at Itron Co., continued with an explanation that as we move from a centralized model to distributed resources, new regulation is needed, particularly for managing resources and infrastructure that cannot be digitized and will continue to carry physical risks (i.e., water, electricity, gas). With consideration for security, questions revolve around if and why certain systems should be put into the cloud. We must better understand costs and benefits, the value of data, how technology will be used, and what KPIs need to be created.

CORE THEMES

In spite of the current infatuation with big data, more is not always better, particularly with regard to consumer behavior change. The focus should instead be on getting the right data. "Fog" computing offers an alternative whereby data transfer occurs at the level near the source to minimize data streaming and localizes certain types of analytics. This might be more appropriate for a water treatment facility or single nodes in a lighting system. Whether data is best moved to the centralized network (cloud) or kept at the edge of the network (fog) depends on the infrastructure and needs. Defining those needs for data must happen before decisions are made about network architecture.



Source: Scott Mauvais, Microsoft


The networked data vision associated with the Internet of Everything has given rise to some apprehension. Key concerns include security, such as data protection, privacy, and vulnerability. Two-way controls in a network increase these risks, whereas one-way networks are less dangerous. Another concern is the unpreparedness of utilities to implement and use such systems, as many do not even have an adequate inventory of their own current assets and systems.

Rather than solely creating efficiencies in systems, people must be at the center of efforts to determine the purpose of technology. This requires a shared understanding of values and what should be optimized. Increased use of open, transparent, and outsider validated small-scale experiments is an important measure for progress and for cross-sector learning to take place.

The transformation of infrastructure at the city scale across the water, transport, and energy sectors will be facilitated by:

- Shared metrics to track and measure progress;
- A greater understanding of drivers of change, or the factors that enable transformation; and,
- Use of data to inform decisions, make processes more transparent and responsive, and to create opportunities for citizen participation

Engaging Urban Citizens

 **KEY QUESTION:** How are urban citizens engaging differently and how are these changes shaping policy making? Are citizens no longer content to remain passive consumers of services? Are larger institutions, such as utilities and government regulators, going to have to relate in new ways to a more activated citizen?

SETTING OUT KEY ISSUES

At the start of any engagement process, there is a need to develop common context and points of reference. Charles Rutheiser, Senior Associate, Center for Community and Economic Opportunity, Annie E. Casey Foundation, observed that resistance to easy solutions can be traced to the nature of a problem. “Wicked problems” are the unordered or messy social problems that cannot be tackled solely by science and engineering approaches. These problems relate to complex adaptive systems.

Issues related to equity typically carry the hallmark of wicked problems. This means that people are approaching the problem from different frames of reference with asymmetries in access to knowledge and power. Policy is generally approached like a mechanical system in which an action (i.e., “policy lever”) is intended to trigger a predictable outcome. Wicked problems are not this consistent or predictable.

Policy made by private institutions is not subject to public review, which is particularly relevant with the increasing privatization of basic public services. This is compounded by the changing nature of what is considered public, private, and personal. Water, energy, and transport systems are all highly complex. Technology adds another layer to the complexity that can make these systems inaccessible to many people.

Jim Waring, Chairman of Cleantech San Diego, added a different dimension to the conversation, suggesting that citizens are not actually engaging; however, Waring also made the case that citizen engagement is not essential to the creation of smart cities. Most people are too busy to be expected to engage, while those who do are self-selecting and are not sufficient for building macro-level consensus. Instead of conversation and grassroots development, solutions tend to come directly from action, policy creation, and high-level political engagement. Some believe that a bottom-up catalyst is more likely to drive necessary change in cities with slow progress (a “muddle through” scenario), while others hold that change will come from more radical transformation (a “breakthrough” or “breakdown” scenario). Waring challenged that a top-down approach can sometimes be useful instead of relying too heavily on citizen engagement and the actions of individuals.

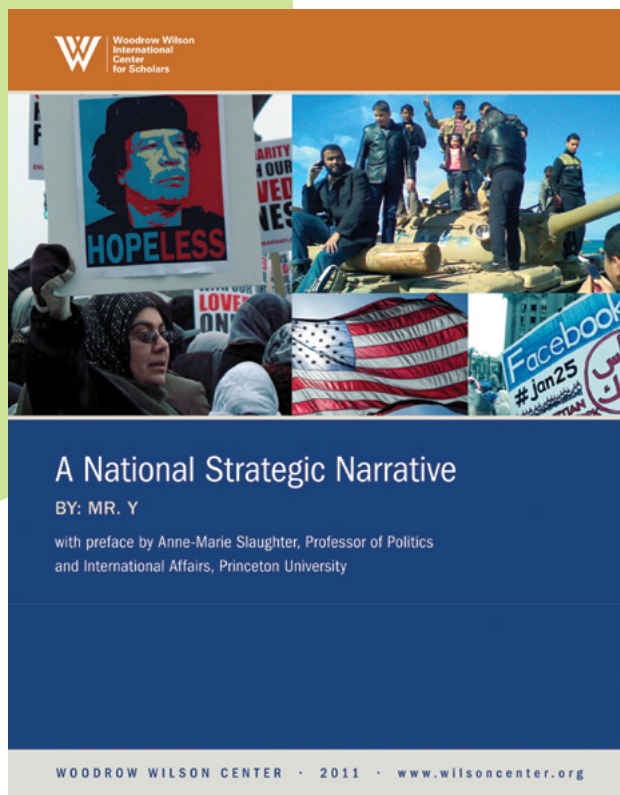
CORE THEMES

Economic inequality hinders the ability to create sustainable cities. Problems in governance manifest in citizen involvement processes that are not authentic or set up for proper engagement, and instead only provide ways for people to say no. Furthermore, fragmentation of governance systems is inefficient and ineffective. The private sector shares with government the problems of


inefficiencies and fragmentation. Developing policy, tools, and capacity to drive and maintain efficiency, especially for utilities, can simultaneously enhance citizen engagement. Properly valuing externalities is a key solution to many problems, including

collective decision making about investments in and distribution of resources. Incentivizing desired actions, i.e., pricing water, can be an important tool for policy makers.

A coherent vision or aspirational strategy, such as the “National Strategic Narrative,” enables a systems view—rather than a focus on single interventions—which can be broadly implemented and then translated at the local level.



Policy Implications and Actionable Ideas

 **KEY QUESTION:** What are the policy frameworks that allow for holistic solutions that cut across sectoral and jurisdictional boundaries for prosperous, sustainable, and equitable cities of the future?

SETTING OUT KEY ISSUES

Mark “Puck” Mykleby, retired Colonel, USMC and Founding Co-director, Strategic Innovation Lab, Case Western Reserve University, introduced sustainability as a grand strategy of the United States for the 21st century. In 2009, Mykleby, together with Captain Wayne Porter, was asked by then-Chairman of the Joint Chiefs of Staff, Admiral Mullen to develop a concept that shifts national focus from threat and risk to opportunity. As development of the strategy progressed, it became evident that the underlying problems in America tied back to global sustainability. To meet this great global challenge “A National Strategic Narrative” was developed, outlining a policy framework to align the country’s economic engine, governing institutions, and foreign policy.⁸

The strategy’s vision included walkable communities, regenerative agriculture, and productivity revolution. This represents a movement toward sectors that generate greater economic benefit per input—such as agriculture, construction, and transportation—rather than investments in sectors such as retail, finance, and information services. An alternative growth scenario outlines key approaches within each sector to create a new economic system based on full spectrum sustainability. The intention is to integrate whole functional systems for key supports such as food, water, and shelter. For example, ecosystem service markets are used for the natural resources sector, distributed

renewables for the electricity sector, and multi-modal mobility systems for transportation.

CORE THEMES

With the understanding that cities offer tremendous opportunity as effective arenas to catalyze action, attention must turn to identifying points of intervention, engagement, and leverage. Regional, state, and federal support for cities is invaluable. The “National Strategic Narrative” offers an entry point for city level strategy action.

It is easier and more likely for cities to adopt change once one takes the initiative. Trailblazing can be located in large cities, such as New York or Chicago, yet important models can be found in urban areas that have received less national attention and that are less commonly identified with sustainability. For example, Salt Lake City has effectively used sustainability as the logic for the city. Houston and Austin are favorable for sustainability action, located in regions of strategic importance where energy, water, and agriculture come together. Kansas City offers an important smart city model for small and medium-sized cities for its sustainability transition by making the urban center more appealing for densification. Important insights can be drawn from models in cities in other countries around the world, for example the use of PPPs in London and Stockholm. However, any formula needs to be calibrated, socialized, and connected with each city’s identity.

⁸ See Wayne Porter and Mark Mykleby, “A National Strategic Narrative,” (Washington DC: Woodrow Wilson Center, 2011), <http://www.wilsoncenter.org/sites/default/files/A%20National%20Strategic%20Narrative.pdf>

Models for regional, state, and federal level action are also important. Federal agencies can advance integrated approaches to policy, such as the work of the Department of Energy on the water-energy nexus. While the California Environmental Quality Act (CEQA) and the environmental review process are focused on impacts, similar attention should be given to assessing inaction. Monetizing externalities is a critical area for change and creating opportunities. New roles assumed by the U.S. Council of Mayors or city implementation of a carbon tax, such as in Boulder, Colorado, are examples of mayors seeking new mechanisms that enhance and extend their voice, power, and tools to bring about change.

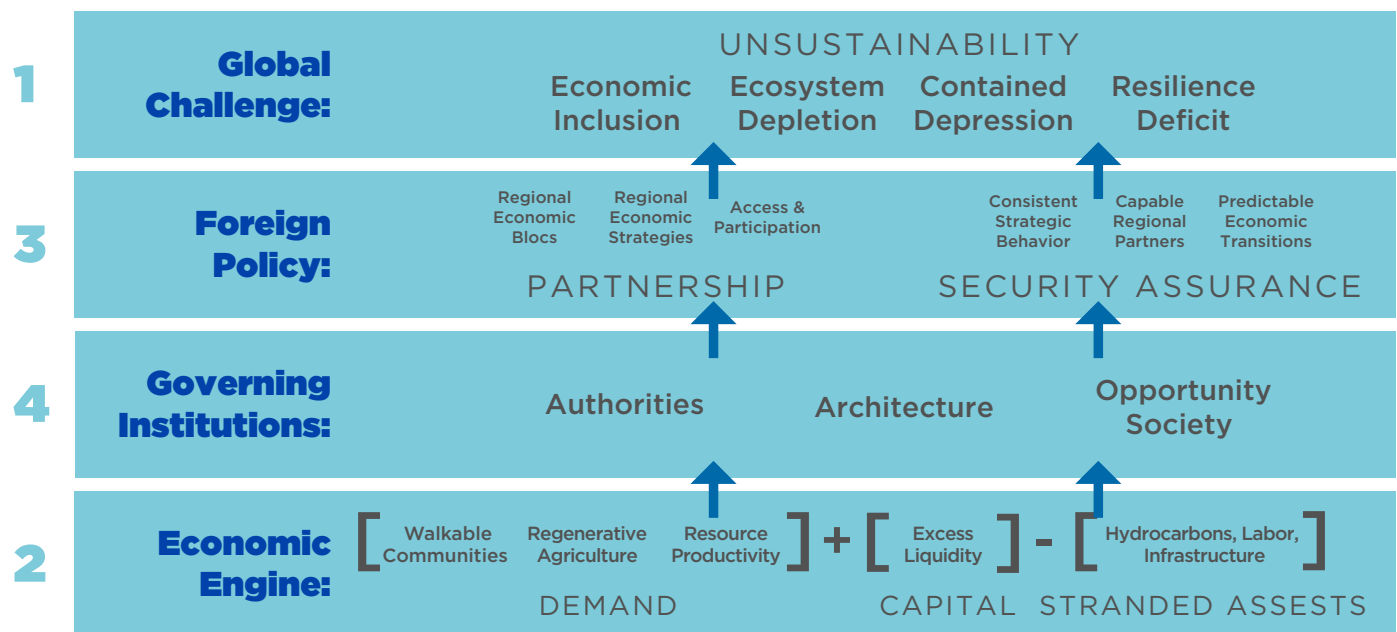
Private sector buy-in and multi-sector coalitions can provide valuable support for the work of cities.

Successful city leaders are engaging with a diverse, full spectrum of stakeholders, including academics, business leaders, and civil society organizations.

It is important to leverage work with the “just below” layer of people in city government and the private sector. This layer includes senior managers, deputy department heads, and others who are catalysts between action and strategy/policy and who can bridge and influence both higher and lower layers of the bureaucracy.

A coherent vision or aspirational strategy, such as the “National Strategic Narrative,” enables a systems view—rather than a focus on single interventions—which can be broadly implemented and then translated at the local level.

A NEW US GRAND STRATEGY



Source: Mark Mykleby, Strategic Innovation Lab, Case Western Reserve University

Conclusions

THE CROSSOVER WORKSHOP was an intensive exploration of core issues related to urban energy, water, and transportation. Participants recognized the complex adaptive systems nature of urban sustainability and the need for broad, integrated approaches that work together across space and time. The necessary shift to long-term integrated planning and investment carries implications for a culture change, as recouping a societal willingness to pay for both current and future benefits is a significant challenge. Systems change offers opportunities for prosperity, but requires interventions such as shifting pricing mechanisms to include externalities and reflect true costs.

A grand vision for the United States can recreate national and local aspirations while guiding the associated systemic shifts. Defining needs must be based on the larger vision. Technology is to be used as a tool to fulfill needs in support of the vision, but should not become a goal in itself. When designed with user needs in mind, technology offers tremendous opportunities for driving efficiencies and supporting other critical urban work. There are varying degrees of readiness for action across sectors and institutions, and basic modernization is needed, particularly for utilities and governments, before advanced data collection and analysis can be optimized, getting the right data (vs. big data). Adaptability is necessary to ensure appropriateness of interventions.

A core theme that emerged from the workshop was the critical need for new ways of working between and within public and private sectors. Greater communication, collaboration, and partnerships are necessary for making the changes needed for cities and their citizens. Regular multi-sector dialogue is critical for building trust, facilitating transparency, bridging silos, integrating systems, and finding and implementing solutions.

Although there are tremendous challenges facing cities in radically adapting and renewing their municipal services and critical infrastructure, sharing lessons across sector and identifying “cross border” links in policy, technology, and practice is an important step in sowing the seeds for the transformation required.

WORKSHOP PARTICIPANTS

Samuel Bockenbauer, Energy Policy Fellow, U.S. Department of Energy

David Bragdon, Executive Director, TransitCenter

Lynn Broaddus, President, Broadview Collaborative, Inc.

Marc Collins, Senior Principal Consultant, Itron Co.

Frank Cutitta, Editorial Director, Smart & Resilient Cities

Roger C. Dower, President, Johnson Foundation at Wingspread

Gordon Feller, Director, Office of the Executive Vice President, Cisco Systems; Global Fellow, Wilson Center

Charles Kiely, Assistant General Manager, Customer Care and Operations, District of Columbia Water and Sewer Authority (DC Water)

Julie Kim, Senior Fellow, New Cities Foundation, Global Projects Center, Stanford University

Ken Kirk, Executive Director, National Association of Clean Water Agencies (NACWA)

Michael Kleeman, Senior Fellow, University of California, San Diego

Scott Mauvais, Director of Civic Innovation, Microsoft

Molly Mayo, Partner, Meridian Institute

Nils Moe, Managing Director, Urban Sustainability Directors Network (USDN)

Drew Murphy, Senior Managing Director, Macquarie Infrastructure and Real Assets Inc. (MIRA)

Mark Mykleby, Co-Director, Strategic Innovation Lab, Case Western Reserve University

Rachel Nguyen, Executive Director, Future Lab, Nissan Motor Ltd.

Melanie Nutter, Principal, Nutter Consulting, LLC

Christina Olsen, Project Manager, EcoSmart; Meeting Rapporteur

Eileen O'Neill, Executive Director, Water Environment Federation (WEF)

Charles Rutheiser, Senior Associate, Center for Community and Economic Opportunity, Annie E. Casey Foundation

Scott Stallard, Vice President, Advanced Technology/Solutions Development for Power Generation, Water, and Smart Cities; Director of Smart Analytics, Smart Integrated Infrastructure, Black & Veatch

Bruno Valla, Deputy General Manager, Peer Performance Solutions (PPS), Veolia North America

Jim Waring, Chairman and Co-Founder, Cleantech San Diego

Becky Werra, Senior Account Executive, Building Technologies Division, Siemens Industry



Crossover participants, Johnson Foundation at Wingspread



URBAN SUSTAINABILITY LABORATORY

Woodrow Wilson International Center for Scholars
One Woodrow Wilson Plaza
1300 Pennsylvania Avenue NW
Washington, DC 20004-3027

www.wilsoncenter.org

