

Getting Infrastructure Done

PATHWAYS TOWARD
REBUILDING AMERICA,
ROUNDTABLE DISCUSSION

BY RICHARD SCHLESINGER

Icons
OF INFRASTRUCTURE

IN ASSOCIATION WITH:  **AUTODESK.**

Infrastructure is crumbling, and the solution can't be to simply replace it. A crumbling infrastructure goes far beyond potholes or fallen utility poles. It's an electric grid perilously vulnerable to cyberattack; a broadband network that's overloaded and often fails to penetrate beyond urban areas; it's a transportation system unprepared for the coming revolution in electric and autonomous vehicles; it's a social infrastructure that is modeled on the healthcare and education systems in place a hundred years ago; and it's a construction system that all too often fails

to integrate revolutionary technology such as BIM, building information modeling, to give architecture, engineering and construction the tools needed to efficiently plan, design, construct and maintain infrastructure.

Most of all, today's infrastructure crisis – a crisis fundamental to the well being of society – demands dialogue, dialogue among politicians, the public, funders, builders and, crucially, technological innovators.

On Tuesday, April 24, leaders in the broad world of infrastructure renovation and evolution

gathered at a restaurant in Manhattan to share their experience and to brainstorm to identify the most significant opportunities, challenges and, perhaps, solutions to the issue of infrastructure rehabilitation.

The roundtable was convened under the dual auspices of Autodesk, the large multinational software company that specializes in architecture, engineering, manufacturing and construction, and Icons of Infrastructure, the U.S.-based division of Informa, a leading business intelligence-firm in London.



The dinner was the first of four scheduled in the United States this year. **Marty Rosenberg**, director of content, energy, for Informa's Icons of Infrastructure set out one of the chief goals of the evening: to "identify and celebrate success stories and examine the factors that drove those successes to see if they can be adapted by other governments and entities."

Dominic Thesarathar, Autodesk's primary strategist and thought leader for Construction, Energy and Natural Resources, asked each of the participants to identify one or two of the biggest challenges people in the room and their companies face. "Our perspective is technology, how it will help you to improve what you're doing to ensure the world has the infrastructure



it needs, that it's funded, but also how it might disrupt your industry. We, as technological innovators, need to understand what you're trying to do and to put on the table what we think technology can and should do to help you do it."



Martin G. Travers, group president of Black & Veatch, identified two. "Determining the right level of financial support for the complex projects we work with companies on is one challenge. And then many of the projects we pursue are challenged with permitting issues and the often slow pace of permitting. That creates scheduling impairments that are completely out of our control."

Sia Kusha, Group Head, Project Development and Partnering, of Plenary Group, said "first is the fact that our infrastructure planning tends to be more related top cycle is a construction cycles and capital improvement budgets, as opposed to whole-of-life analyses of facilities. In this process, we typically don't plan for budgeting an investment for the whole lifecycle of a facility, and that causes a series of issues, namely the potential for significant deferred maintenance deficits in later years. The second challenge, that hinders infrastructure development in this country, is regulatory. I believe that, overall, if we had less regulation across the board we would be able to get projects done a lot more quickly."



Technological innovation, or disruption, is already changing the infrastructure universe

President Trump came into office promising a multi-trillion dollar initiative to fund an infrastructure renaissance, but federal support was later significantly curtailed in the face of looming budget shortfalls. Funding was identified by many participants as a main challenge.

Daniel McQuade, group president, Construction at AECOM, singled out public-sector funding. “Private sector, particularly private commercial-sector funding is there in abundance, but public-sector funding and permitting are absolutely challenges.”

The consensus was that financing – the comparison was to home-mortgage financing – was available, but funding was often extremely difficult to secure. But whether through direct funding or financing, paying for infrastructure remains a densely complex and extremely difficult issue.

The broad issue of funding was intimately entangled with the other challenge virtually all participants identified: how technology is poised to change both infrastructure and the social and civic landscape in which infrastructure functions. Thasarathar noted that there are a number of examples in Europe of how technology is offering new ways to raise capital for built-asset projects via crowd-funding.



Matthew Metcalfe, principal at Booz Allen Hamilton, also cited crowd funding as a new revenue source and noted an additional technology-enabled funding source: “Wi-Fi. Wi-Fi everywhere will become an important funding source. It

offers the opportunity to capitalize on data, and that is very, very powerful. If you’re tracking every car that moves down the highway and everything about that car – what people are listening to on the radio, what the kids are watching on their TVs and cell phones – who gets that data and how valuable is it? That’s a lot of data, and it could provide an important source of revenue.”

Wi-Fi is becoming a funding source at a more local level, as well. **Stephen Beatty**, global chairman, Infrastructure, for KPMG, pointed to LinkNYC, run by a consortium headed by CityBridge, that is replacing outmoded telephone booths

with kiosks, where the public gets free Wi-Fi and phone charging and the sponsor gets revenue from advertising, which it shares with the city.

Technological innovation, or disruption, is already changing the infrastructure universe. What will roads look like in a decade or two, as electric and autonomous vehicles become mainstream? How will transportation infrastructure change if drones take over a large part of package delivery? The general public has little or no idea about these things or how technology is about to profoundly transform the infrastructure they’ve come to assume is forever. Sia Kusha summed it up quite succinctly. “I’m reminded of what a mentor of mine said about disruptive technologies. Before Henry Ford put out his first automobile, he asked people, including Wells Fargo, which had the big stage-coach routes across the country, what they would want in terms of an improved transportation system. They told him they wanted faster horses. Ford never got them faster horses. He gave them the automobile, and that completely changed the nature of transportation infrastructure.”

As technology is changing the nature of infrastructure and changing the way it is funded, it is also changing the way states need to understand their role.

Gregg Sayre serves as a commissioner on the New York Public Service Commission which regulates utilities and is overseeing implementation of a major transformation of the state’s energy under the REV – Reforming the Energy Vision - initiative.



“We don’t have a problem getting capital to deal with the issue of an aging structure, either electric or gas Sayre said. “If we tell large utilities they’ve got to invest, they will invest. Our issue is we have to raise rates, which are already high in New York, compared to most other states, so we have to be careful not to raise them to the point where they become burdensome for residents and drive businesses out of the state. At the same time, we have to completely change the way the electric network is architected and regulated, because technology has fundamentally altered it. It’s no longer a one-way system, from generation to transmission to substation to distribution and then to the poles and homes and businesses. It’s going two ways, with distributed resources that are growing like weeds. All that demands a new compensation system. Battery storage, in particular, is a big issue. Good old rate-of-return regulation won’t do it anymore. We have to start regulating based on outcomes

we want the utilities to achieve and give them some goals as well as some carrots and sticks.

Sayre also sees broadband as a challenging funding issue. “We have a terrible rural/urban divide. We’ve got to find a way of getting universal broadband service. For heaven’s sake, this country did it for universal telephone and electric service in the 1930s and 1940s, when the financial conditions were far worse than they are today. We’ve got to finish the job on broadband. There are a lot of choices, but we need to push them.”

But pushing broadband, like pushing funding for many infrastructure projects on a state level, is anything but simple.

Marty Travers of Black & Veatch points to a project he worked on in Kentucky, a private/public partnership to construct over 3,000 miles of fiber-optic cable covering the entire state. “They’re issuing tax-free state bonds to raise the funds and they also have some federal money. The bureaucratic process of permitting is cumbersome and it’s slow, and there’s the issue of working with companies that have infrastructure in place, but it’s doable.”

The outcome was hardly certain, however. Sia Kusha, who also worked on it, noted that the Kentucky project depended on public funding, and the legislature actually eliminated it. “Had the governor not stepped in, which at the last minute he did, and vetoed the budget, which sent the legislators back to the drawing board, it never would have moved forward,” he said.

The funding ultimately passed, but a failure in Kentucky could have had national repercussions. Appropriation-backed funding is something that has become more contentious over the past few years, and all it takes is one project that fails to get appropriated, and all of a sudden the relatively small amount of funding that’s still available suddenly dries up.

Difficult as it may be, it’s still easier to find public-private funding for infrastructure such as broadband, which began as a private commodity, than it is to fund more traditional projects.

George Friedlander, managing partner, Court Street Group Research, who has over 40 years of experience in municipal funding and strategy, points to “a massive distrust of privatization because the history has been less than stellar. The case for it now has become much stronger, but overcoming the historical resistance to a private-sector role in things that aren’t private-ish, such as broadband, is still a war that’s going on state by state by state.”



It’s still easier to find public-private funding for infrastructure such as broadband

Friedlander, like most of the other participants, is pessimistic about enlisting the federal government in infrastructure projects. Rather, initiatives will come from the state and even local level. “Industry has little faith in the power of the federal government to provide any solutions in the short term,” says Sia Kusha. “You can’t look to Washington for funding anymore, so you have to look at the state and local level. And in doing so the nature of the conversation changes, away from Washington to we truly have to address our own funding needs at the local level.”

PwC Advisory’s **Anaita Kasad** sees firms like hers as playing the role of trusted advisor between the government side, often the local government, and private firms. Flexibility, she thinks, is key. “We have a lot of new technology in place and a whole new generation that cares about different things, new consumer groups that use technology all the time and will probably use infrastructure in ways that are far different from what older generations did. That means we have to be equally creative. We have to look at new models, and we have to realize that a model that works well one place might not be acceptable someplace else. In New York you might have trouble selling a model that worked well in Kansas City. But I think if we start to think about ways we can break down that resistance we can definitely break new ground.”

Peter Fusaro, president of Global Change Associates, the New York-based energy consulting firm, sees the rise of new social groups as a challenge and an opportunity. “We have to address what I call behavioral change, and that can be the hardest part of all of this. How do you change people’s behavior, incentivize them? I’ve spent about 25 years mentoring young people, and I can tell you they’re more engaged on sustainability and issues that are very near and dear to them. They’re going to do car sharing and they’re not going to buy bottled water. Nobody told them to do it, they just do it. I’m actually very optimistic. They’re not empowered – yet – but they are the human capital that sits there.”





The sharing economy is becoming a key force in infrastructure, both in the design of new infrastructure and its funding. “These are globalizing communities,” notes Friedlander. “It’s not just the United States and Japan, it’s not a single country and it’s not a fad. These sharing-type groups are getting bigger and bigger, from country to country, and they’re going to be a significant part of our economy.”

It’s already happening. “Technology is already giving us entirely new sources of funding,” states Autodesk’s Dominic Thasarathar. “For instance, there are a number of examples in Europe of crowd-funded buildin. It’s come about because technology is enabling new ways to access capital. Perhaps in the future, everyone gets a tax rebate that they can use towards a particular construction project of their choice. Technology is empowering radical change that can break the constraints of traditional funding sources. This could be a powerful tool to break the logjam we see right now where infrastructure is caught in a short-term political cycle.”

Similarly, private companies in the United States are already adopting novel approaches to infrastructure funding. Several participants noted some fascinating examples. There are companies using technology to pre-buy passes on metro transportation systems or pre-lease apartments in a complex. There are companies that need trained manpower and resources that go into a university and pre-sign up thousands of student hours for the next 25 years; tuition comes directly from the company and backstops the infrastructure funding requirement, which can then be leveraged into building the campus that’s required. The same thing can happen in transit and residential systems. The ultimate end-user in these cases is not really paying for it. Rather, there’s some intermediary that, not only for altruistic reasons, is willing to make that kind of investment for the long term.

While new technology and social changes are revealing powerful new ways to fund infrastructure and at the same time redefining what infrastructure is, there is one essential force that remains untapped: leadership. The election cycle is an impediment to political leadership, so champions for infrastructure are more likely to emerge from career government workers, industry or the financial-advisory sector.

Anaita Kasad points to the lack of ownership, especially when projects cross multiple city or state lines where no single person can take ownership and make vital decisions.

For **Ross Spivak**, president of RES Consulting NYC, the key is to have a person, a single person who can make decisions.

Or, as **Pete Scarpelli**, operating advisor at Pegasus Advisors puts it, “if something’s not someone’s job, it doesn’t get done. So my concern about infrastructure is that the concept is so big and so amorphous that it’s no one’s job.”



David Diaz, senior project development officer of the North American Development Bank, notes that leadership goes beyond a single individual. “The economic payback for some infrastructure projects can be hard to see and too far in the future, so leadership becomes crucial. You either have to have a culture in place or a strong tax incentive to get people behind some of these projects. If you don’t align the culture with public policy through leadership, it can be very difficult to realize innovation and efficiency when it doesn’t immediately translate to economic rewards.”

NY Public Service Commissioner Gregg Sayre agrees. “Innovative infrastructure is not going to happen unless on the state and local level, at the level of the broadband systems, you have a leader who’s got the vision and can communicate it, who sees what’s missing, figures out a path to get there and then sells it. You’ve got to have a strong salesperson. But it’s leadership that is kind of thin on the ground right now.”

All of which gets back to the purpose of April’s meeting. There are icons of infrastructure, successes such as the effort to bring broadband to rural sections of Kentucky, but there’s not enough publicity surrounding them.

The political community, the public-interest group community, and leaders in finance and funding need to be in the same room. There needs to be a meeting of minds to get the kind of leadership that can push projects forward.

As Marty Rosenberg puts it, “we stand at a social, cultural and political flex point, where the way it’s been done from the 1950s until now is not going to be the wave of the future.”

“There’s a desperate need to publicize the icons of infrastructure that are happening on the local and state level, here and abroad. That means leadership,” he said. “But it also means dialogue with and among all the parties involved on a continuing and expanding basis.”