

THE BROOKINGS INSTITUTION

THE RISE OF INNOVATION DISTRICTS: A NEW GEOGRAPHY OF INNOVATION IN
AMERICA

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P R O C E E D I N G S

MR. JACOBS: Good morning and welcome to Brookings and welcome to Metropolitan Studies. Just as a reminder, this program is webcast so whatever you say it will be memorialized. And it's also open for Tweet. You'll see the hashtag on the screens. It's #innovationdistricts. My name is Ben Jacobs. I am here, I guess, initially or primarily I'm a trustee of Brookings. As to other reasons for my being here and having the privilege of introducing this morning's program, I'm not quite certain. Perhaps over the course of the next few minutes, the reason will come to me, but it's not yet here.

But I do have 52-plus years, not surprising from the visage, of hands-on real estate development experience primarily in the Washington, D.C. area, but from time to time, we do go afield. Even that would raise the question, so what? And I'd like to think almost like a psychiatric patient who goes tediously and religiously to therapy, every now and again though he may not improve, there are bits of insight that come along, which can be valuable.

The other side of that question is how can I really presumptively take on and embrace Julie and Bruce's work, *The Rise of Innovation Districts*? And to draw legitimate parallels, I would have to give you a little context. That is, what is JBG? And just by way of parentheses, parentheses would include JBG is the company which I was involved in founding 52 years ago and continues even to this day, which in the real estate development business alone, could be viewed as remarkable. And this will not, I promise you, be a self-serving shaggy dog monologue about our bona fides.

We were starting as a classic independent entrepreneurial sort of ingénue real estate group that did whatever came along and seized opportunities that seemed appropriate, sort of the flavor of the day. But as time passed and experiences evolved, we'd begun to realize that zoning, mandates of the community, particularly,

community support, market realities, political predictability, and in the Washington, D.C. area, many of you know we have Washington, D.C. as a jurisdiction. We have Virginia. We have Maryland. We have the federal government. Then we have Arlington County, Alexandria, Fairfax, Montgomery, Prince Georges, a whole plethora of legislative and community initiatives that can intersect to either support or frustrate one's best efforts.

And so we've learned from that. We'd begun to realize that something more than a simple straightforward one off development was really the key to creating value. Not just value for ourselves, which is one criteria in our investors to whom we have a fiduciary responsibility, but to the community itself, to the political members within the community, that is the elected officials. But also to members of the community that began to realize that a multi-use, multi-dimensioned, long-term project is one that has sustainability. And I mean sustainability not just in the environmentally correct sense, but also sustainable if one element begins to fade because it's a primary employer perhaps, or a retail establishment. If there is viability, if there is cohesiveness in the development, it can to a much greater degree than would be typically the case, sustain itself. And we felt that was particularly important. It was sort of the beginning for us and with the advent of the metro, and that really dates us, sort of my duh moment, we realized mixed-use development is really important, and a transit orientation, particularly in this area, is critical. And so we'd begun to look at that in a very critical and analytical way, not beginning to approach the scholarship and analytics that Bruce and Julie and others here have evolved in today's program, but in a simplistic way, in a practical and discreet way.

And what we see in the greater metropolitan area is great examples of some successes. There's a development, the Southeast Federal Center, which was federal initiative to put the Department of Transportation, a million and a half square feet of a cabinet agency headquarters, a cabinet headquarters, in a location. They finally

chose a location in a rundown, though there was some development burgeoning, area of the city. And since then it has blossomed, restaurants, residential, collateral businesses that depend on government contracts, and others. So we have examples, Health and Human Services, another. So in instances, the government who, of course, is our primary employer here, will take an initiative and go to an area which can really then be developed. Unfortunately, they're examples of real waste. The St. Elizabeth project, which is in some respects interesting and attractive, now houses the Coast Guard, intended to house Homeland Security, and likely will house the Coast Guard, and the Coast Guard, and probably the Coast Guard.

And there's still potential opportunities here. We have Walter Reed, which is a large federal property, formerly the U.S. Military Hospital, a little piece of which will remain, in an urban area, in the District of Columbia, which has real opportunity for mixed-use development. How it will be managed in its disposition and its development turns back to political issues, community issues, and the will of the development community and the user community, residential, retail, commercial primarily, to get engaged. And that requires patience because in any jurisdiction, here as well as most, patience is a key.

And so then I think to myself, what is the real, what are the keys that have brought us to our recognition of this, and patience would be the first piece. A limited vision, because aspirations that are too great will inevitably fall asunder. Capital, and not just capital in the monetary sense, but people capital. And that has become and remains a critical element in my view of these long-term visionary type developments that are going to be the key, we believe, for us and I believe for others going forward into the next generations of community growth, city growth, area growth.

And finally, probably the most important piece, which takes me back to

what is the reason I'm here? Luck, I mean, it has a lot to do with luck. And so for me, I'm very lucky to be here and have the opportunity to introduce Bruce and Julie's program and I encourage you all to enjoy the day and thanks for indulging me.

MR. KATZ: So good morning everyone. First of all, thanks to Ben for that introduction because for those of us who've lived in Washington D.C., I've lived here since the mid-eighties, the work that your company has done was really ahead of its time, frankly. And we've all seen this region grow in very smart and strategic ways. I want to welcome everyone here today. To those people who are on the webcast, you know, as Ben said, engage during this program by tweeting, very civil, using the hashtag innovation districts.

Before we start, we wouldn't be able to do this work without the support of some really important individuals and companies. So I just wanted to start by thanking Vicki Sant, the New Economy Initiative out of Detroit, the Kresge Foundation, out of Troy in Detroit. A lot of the work you're going to see today really comes out of deep engagement of ourselves in that great city. Lennar and Comcast, and also we have a leadership council here at Brookings for the Metro Program and I want to thank those folks as well.

So what are we here to talk about? We're here to talk about a really disruptive trend in the United States and Europe and other parts of the world, which is the shifting geography of innovation, and how that can be harnessed to grow more jobs, better jobs, and more accessible jobs, particularly for people who have been left out of the economy. I'll welcome shortly really a terrific group of local leaders who will share their on-the-ground experiences. But first I'd like to highlight a couple points from the report that Julie Wagner and I have released today. First, why are these innovation districts emerging? Second, what do they look like? And, finally, how can local leaders

chart a path forward, given their disparate and distinctive assets and advantages?

So first, what's behind this shifting geography of innovation? Let's go back a bit to the 19th and early 20th Century. What did we build here and in parts of Europe and Japan? We built industrial districts characterized by a high concentration of large-scale manufacturing that was enmeshed in the urban fabric. For the past 50 years, the landscape of innovation has been dominated by places like Silicon Valley, suburban corridors, isolated corporate campuses, research parks, accessible only by car, little emphasis on the quality of life or integrating work, housing, and recreation.

So that brings us to today. The rise of a different kind of model, innovation districts that cluster cutting edge research institutions, R&D intensive companies with start-ups and business incubators. And these are places that are physically compact, transit accessible, and offer mixed-use housing, office, and retail. This is not another, you know, government program, right? This is a response to really profound and deep demographic and market dynamics that are radically altering where businesses want to locate and people want to live.

So some of the trends we're experiencing. First, our open innovative economy does crave proximity and extols integration so that ideas and knowledge can be transferred quickly and seamlessly. So consider a large pharmaceutical company like Pfizer. For decades, most of its advanced research occurred in this isolated corporate campus outside of Ann Arbor, Michigan. Shuttered in 2008, compare that to where Pfizer is opening new labs today. Right smack in the middle of Kendall Square, one block from MIT, adjacent to peers like Novartis and Acceleron.

Now at the same time, our diversifying population and our most skilled workers are demanding urban walkable neighborhoods, Chris Leinberger is here, where housing jobs and amenities intermix. That's because household dynamics are changing.

The prototypical family which drove suburbanization, a married couple with school age kids, is declining precipitously, and now represents just under 20 percent of American households down from 40 percent in 1970. Older Americans, obviously a growing population segment as the baby boomers age, are also seeking smaller homes, easier access to public health, transit, daily necessities. In a recent AARP survey on housing preferences, walking access to a bus stop ranked as the most desired amenity for seniors in housing choices.

And finally, the millennial generation, many of whom seem to be here today, that are choosing cities at substantial rates over the population as a whole. What's happening in this country is a broad revaluing of cities and of what Saskia Sassen, the great urbanist, called cityness. It's altering how firms and people interact, how ideas flow, and how places are designed and built. So listen to this just for a sec.

(VIDEO PLAYED)

So for the Americans in the audience, I grew on *Schoolhouse Rock* so.

So what are innovation districts? Here's the definition Julie and I have settled upon, geographic areas where anchor institution and companies cluster and connect with small firms, start-ups, business incubators and accelerators. And again, in areas that are physically compact, transit accessible, technically wired, and offer this mix of housing, office and retail.

And this is what's really critical. At a time when our country and many of our cities still have an enormous jobs deficit, not just because of the aftermath of the recession, but because of population growth and labor market dynamics, these places supercharge the innovation economy. And that's critical because innovation jobs, tech jobs, have a strong multiplier effect and create as Enrico Moretti talked in the *New Geography of Jobs*, five additional jobs for every innovation job created.

So we've identified three distinctive development patterns that are emerging here and particularly in Europe. Anchor plus districts, which I'll describe, what we call re-imagined urban areas, and perhaps most interesting and the most validating part of all this is urbanizing science parks. So in the U.S., the anchor plus districts are emerging near universities, large medical campuses, major companies with large R&D, in the downtowns and midtowns of cities like St. Louis, Cambridge, and Philadelphia. The re-imagined urban areas model, we're seeing this emerge really in high rent cities such as Boston, I'm going to include Brooklyn as a city, I'm from Brooklyn, Seattle. And these are in former industrial areas that are close to downtown, accessible by transit, and they really boast an historic and very distinctive housing style. And then as I said before, others are taking shape in the transformation of traditional, as urban science parks, like Research Triangle Park outside of Raleigh-Durham and sprawling research universities such as UVA and the University of Arizona, scrambling to keep pace with the preference of workers and firms for more a urbanized vibrant environments.

So let's deconstruct and break apart these districts and given the vast distinctions in regional economies in the United States and elsewhere, what we're seeing is that the form and function of these districts do differ markedly, yet they all contain really these ubiquitous assets, economic, physical, and networking. And when you combine those assets with a risk-taking culture, they create what economists call an innovation ecosystem. It's that synergistic relationship between people, firms, and place that facilitates idea generation, accelerates commercialization, and again, most importantly, creates jobs and attracts investment, economic assets.

So these are the assets that drive the innovation-rich environment. In many places, they start with anchor institutions. This is Drexel, and you'll hear from John Fry, which attract these large-scale research grants, particularly in basic and applied

science, provide that platform for commercialization of ideas, and concentrate skilled workers and students. The anchors then attract the tech-driven industries and firms most likely to be found in the districts. High value research-oriented firms that excel in applied engineering and life sciences. One notable example out of St. Louis is Cofactor Genomics, a life sciences firm founded by Washu scientists who are now providing genetics testing more quickly and cheaply than previously thought possible. We also see highly creative firms that specialize in industrial design, graphic arts, media, architecture. Philly's University City, Drexel's Videogame Design Institute has spawned numerous successful indie game companies, putting the city on a map at a \$15 billion dollar a year industry.

And finally, we're even beginning to see the return of small-batch manufacturing to the middle of cores of cities. This is a company in the Boston innovation district called Artaic, and that robot's called Arty, and Nicole Fichera actually took us there, specially designed robot that assembles one-of-a-kind mosaics that you normally will see in large hotels, convention centers, and so forth. So those are the economic assets and particularly the driving assets, institutions, and firms.

Physical assets, these are the public and privately-owned spaces, buildings, open spaces, streets, other infrastructure. And they're designed and organized to stimulate new and higher levels of connectivity, collaboration, and innovation. So obviously, we have the physical assets in the public realm, the parks, the plazas, the streets that become the locales of energy and activity. So they can be transformed into these livable public spaces encouraging the choreography of coalitions, which it's Barcelona, whether it's Detroit, or whether it's Eindhoven in Holland.

Physical assets can also be privately-owned buildings that stimulate innovation in new and creative ways. So this is a shared lab space in the St. Louis

Cortex District. It allows inventors to perfect their science rather than making substantial capital expenditures and assuming large early risks and liabilities associated with going it alone. Or they can be convening places. This is Boston's District Hall, which is a hub for that district's innovation community, hosting events, meet-ups, workshops, networking sessions, as Nicole will talk about later.

And finally, there's really the large-scale heavy infrastructure that knits the district together and ties it to the broader metro. Stockholm has a planned life science district, which is really building over a highway and rail depot to reconnect the urban fabric and create a livable space. The growth of the Barcelona innovation district was really the decking over freight rail. And I know John has these ambitions around 30th Street Station in Philadelphia. Finally, the third asset-type, networking assets. And this is critical, obviously, to the innovation economy because it's how individuals, firms, and institutions connect to generate, sharpen, and accelerate the advancement of ideas.

Now, from the literature, what we really have sorted out is the interplay of strong and weak ties. Now, strong ties occur between people of firms that have a common working or professional history. In those kind of connections and linkages, you have people with, you know, the same kind of disciplines, the higher level of trust, the willing to share more detailed information. They're more apt to participate in joint problem-solving. The question for innovation districts is how do you unleash this? This is in Eindhoven, Holland, this is a group called Tech Regulars. They meet on a pretty regular basis to discuss their problems or advances in their work, again, in fairly common sectors and clusters.

But then we have weak ties, and this is really what makes innovation districts so interesting. Because these are the ties between people or firms working with a different context or economic clusters, or there really in the past has been infrequent

contact. When these people come together, you get access to new information, new contacts, business leads, outside of existing networks. So this is a Barcelona regular breakfast that occurs within their innovation district where experts and innovators really coming from really disparate fields begin to connect and find new ways forward. The research shows that what's important to innovation is not just strong ties, but strong and weak ties together.

So what does all that look like in practice? Let's dive into Cortex in St. Louis. It's a 200 acre swath of land to the west of downtown St. Louis. It was officially designated as a district in 2002 thanks to a collection of really smart institutional investment philanthropic money city resources. So what is in Cortex? Well, first the economic assets, right, the drivers. Washington University and their medical school, BJC Healthcare, Shriners Hospital, St. Louis University. Off of that base what they basically generate, and we see this in a lot of parts of the United States, is this really interesting mix of life science firms and research labs.

Then you go to the physical, right, this is the layering of the districts. It's really the layering of cities. The Cortex Foundation has been very purposeful in building smart physical assets throughout the district. It's connected to both downtown and to the Washu's main campus via the Metrolink, their transit system. They're also in the process of building an additional Metrolink stop in the heart of the district. And they're also master planning the Cortex Commons, which will be a public space that will host a stop and again be designed to maximize the interaction of workers. And then finally, you've got the clustering of co-working space, of incubator space, of accelerator space around the Commons to develop their networking assets. And the intentionality of the siting of these spaces again, is designed to unleash those strong and weak ties that I mentioned before.

So talked about what innovation districts are, talked a bit about where

they are. The question is how can local leaders best develop them, steward them, accelerate them, given their distinctive assets in their different cities? So three key steps, and the first step really starts with a leadership network. Cities and metros are not governments, right? Cities and metros are comprised of leaders from public, private, and civic sectors that each have power on their own, but when they come together, they can really do grand things. And in the case of innovation districts, what is happening in city after city after city is they're coming together to design, to deliver, to market, to govern these districts.

They don't all look the same, right? I mean, we're very variegated in this country. In Boston, the innovation district around the seaport was really led by former Mayor Menino and city hall. In University City, what you've got is the University City Science Center, which is really the hub, this research consortium of universities, but also strong universities like Drexel and UPenn. And then you have Research Triangle Park or, you know, the Brooklyn Navy Yard, where you really have like a non-profit entity that basically governs the build-out. So networks are ubiquitous across these districts, but the way in which they get animated and the way they get stewarded change.

Second, every place needs a vision for growth, right, that's really rooted in the unique strengths of the district. And again, here, you know, we really rely on the guidance of that great economist Dolly Parton, you know, find out who you are and do it on purpose. That's what smart cities do. That's what smart metros do. That's what smart innovation districts do. But they don't do it, again, in the same way. In St. Louis, what they did was a sort of a deep analysis, a deep assessment of their niche in plant and life sciences. And then they went through a master planning process to lay out the landscape of this 200 acre swath in the middle of St. Louis, and really build a knowledge community.

As Nicole will talk about, Boston went about its work in much more iterative way. They did not focus on any particular set of economic clusters. They were cluster agnostic. And they encouraged the growth of different kinds of companies. And then they negotiated with developers, the critical real estate community, for concessions around shared work spaces and around innovative spaces.

Final step, once you have a network, once you have a vision, you've got to design and execute different strategies for success. Pursuing talent in technology is obviously essential given that educated and skilled workers and sophisticated infrastructure and systems are the twin drivers of innovation. So in Seattle's South Lake Union, I don't know how many of you were in South Lake Union 20 years ago, it was a low rise sort of dilapidated district right off the downtown. Their talent attraction strategy really began with luring UW Medical Campus into the district. They had Fred Hutch going back to the seventies. They then attracted all these life science companies and other NGOs, non, you know, profit governmental, or non-profit organizations to sort of collocate around UW.

And then in September of 2008, the Lehman collapse. Amazon decided to consolidate its headquarters in the Seattle region in South Lake Union. So what happens when you have Fred Hutch and UW and these companies and Amazon? Talent attracts talent, right? As one entrepreneur said, we love being next to Amazon. They are to South Lake Union what Microsoft was to Redmond in the 1990's. So that's talent and technology.

The second essential strategy is enhancing access to capital, and a lot of different kinds of capital because these districts are mixed. You need capital for housing, for affordable housing, for the retrofit of infrastructure, for the growth of small business and start-ups and so on and so on. Detroit interestingly enough, is almost ahead of the

curve, right, because they had to invent through a collaboration of companies and philanthropies, a new way to attract capital, and obviously, one of the most fiscally stressed and socially challenged cities in the country. And they do that through Invest Detroit and very smart investment vehicles.

And the final piece is promoting inclusive growth. These districts and the cores of our downtowns and midtowns will not be successful until they share prosperity and the benefits of growth. So today in Philadelphia, you'll hear more about this from President Fry, the district is now poised to leverage a recent promise zone designation to better connect the low income neighborhood around Drexel with the opportunity provided by the resources within University City for jobs, for talent, and skills building for education for connectivity.

So here's the bottom line. I think we're at the beginning of the wave of growth of innovation districts in the United States. Again, not because someone came up with some smart federal program, right, but because this is organically aligned with the destructive dynamics of our era, and represents a clear path forward for cities in metro areas. So our message today is that local leaders across many different sectors would be wise to unleash their own distinctive districts. Global companies, financial institutions would be smart to embrace them. The state and federal government should get in the service of this growth because it is productive. It is innovative. It is inclusive and it is sustainable. And the result could be the step towards building a much stronger and resilient economy going forward.

So with that I'll stop. And that is the sort of sound and light show of the morning. And I want to welcome our panel to the stage. So folks can come up and I think everyone's got their name. And moderating the group, and I really want to thank Lydia DePillis from the Washington Post. She covers a range of issues, business policy

trade, urban affairs and infrastructure. She did cover technology at the *New Republic* and wrote some really excellent pieces early on about the rise of innovation districts, and then she also covered land use. So she's the perfect moderator for this panel on innovation districts. Thank you very much.

MS. DEPILLIS: Hi everyone. Thank you so much for being here today. A packed house, that's so exciting. This is such a sexy topic. And great presentation from Bruce and we have the shining reports to look over them at your leisure. We have a really excellent panel today of people who were instrumental in a lot of the projects that Bruce went over. So I'm excited to be able to get a little bit more in depth with all of them.

To my left we have John Fry, President of Drexel University, and has also headed up Franklin and Marshall University, and been an executive vice-president at Penn, so very familiar with Philadelphia and has been really important in the innovation districts surrounding that university and we're going to talk a little bit about the promise zone neighborhood initiative that they're also working on. I'll keep these brief because I think they're, you know, all in your programs and, or at least online, and we want to get to talking.

Then we have Nicole Fichera, who is the General Manager of the Boston Innovation District Building, which houses a bunch of start-ups and is a great civic space that lots of people can use in the Seaport District of Boston, which is not close. It's not the place that you usually think of even around Boston for innovation, but has turned into one.

To her left we have Kofi Bonner, who's President of Lennar Urban Communities in San Francisco, and has held a number of different positions in and around the Bay working for government and was involved in projects that are really

important in San Francisco. If you've been there, from Yerba Buena Gardens to the -- I'm forgetting the last one, but a bunch of other sort of important spaces that we now think of as pretty integral to that landscape, which is pretty much the foremost place for start-ups now in America.

And finally, we have Julie Wagner, who is behind a lot of Bruce's work and is now based in Zurich and has worked with the European Commission there and is looking very in depth at a bunch of cities in Europe specifically. So she'll be able to give us a good understanding of how they do it on that side of the Atlantic.

So let's just get into it. Mr. Fry, President Fry, I think that the question of how innovation districts can help the neighborhoods in which they live is really important because we read a lot, for example, in San Francisco about the inequities inherent to technology development. There's a lot of people who are left out of that form of economic progress. And so why is the promise neighborhood so important to you? And, you know, why did Drexel decide to get involved? It's not something that everybody necessarily takes on and also feel free to tell us more about it.

MR. FRY: Sure, let me frame-up what our innovation neighborhood looks like, which is what we're talking about. So in University City and just to give you the geography, if you come out 30th Street Station and you're heading west, it's from 30th Street Station to 38th Street to the south, University Avenue where Children's Hospital of Philadelphia, Hospital of the University of Pennsylvania, all the way to the north, Market and JFK. So it's a pretty big area. In that area are the campuses of Children's Hospital, the Hospital of the University of Pennsylvania, Presbyterian Hospital, which is part of the University of Pennsylvania Health System, University City Science Center, which Bruce showed you before on the map, which is on Market and about 34th, the University of the Sciences, which is a little bit further west, and of course, Drexel University. So we're

talking about an enormous aggregation of intellectual and physical and financial assets, which heretofore, have been a bit disconnected.

And so I think the idea behind our innovation neighborhood has sort of two parts. One, can we create an aggregation point around 30th Street Station? And as luck would have it, and I'm not sure why exactly this happened, but we've been able to acquire about a little over 12 acres of property right adjacent to 30th Street Station pretty much out to 32nd, Chestnut to the south, JFK Boulevard to the north. That's about six and a half million feet of potential development right around the third busiest train station in the fifth largest city in the country. So that's a good piece of geography to be responsible for. And then secondly, to the north of 30th Street Station, is about a 75 acre rail yard, which we think has the potential for all sorts of development using air rides and using the existing ground. Immediately adjacent to that rail yard is Mantua, which is probably the third most economically distressed neighborhood in Philadelphia.

So we're looking at this sort of holistically. What can we do to create this innovation district in the way in which Bruce has described it in University City and at the same time, be completely in service to the revitalization of very distressed neighborhoods like Mantua. And we're lucky enough now to have the promise zone designation, one of five in the country. So we're trying to think about this holistically, not just an innovation district over here and a distressed neighborhood over there, but something that encompasses all of that. And I think within the neighborhood, if you take a look particularly at the possibilities of doing a K through 8, stem-based public school, which is what we're working on right now, improving housing, improving commercial corridors, enhancing the quality of life through things like public safety and retail corridors, we have a chance in Mantua I think to do something very significant, while we do our work in this innovation district. And if we get it right, everything will be, you know, done in an

integrated way. Not do an innovation district over here and forget the neighborhood over there.

MS. DEPILLIS: Got it, yeah, and important to mention if people are not familiar. Promise neighborhoods do come out of housing and urban development grants so it's a partnership with the federal government that involves lots of investments in neighborhoods from health to education to housing.

Nicole, so tell us a little bit about how the Boston innovation district got started. Whose idea was it? And how do you know that it's working?

MS. FICHERA: Sure, yeah, so I should also say that I now run District Hall, which is the Public Innovation Center. It's sort of right at the heart of things in the innovation district, but I also worked for Mayor Menino, as the Manager of the Innovation District Initiative and really started working on this project in 2010, which is when the innovation district was first announced at the beginning of Mayor Menino's last term.

And, you know, it's really interesting to see it in the framework of all of these kind of taxonomies and of innovation districts all over the world and also the kind of strategic forethought and planning that's going into some of the innovation districts that are getting started because we didn't have that. You know, in Boston in 2010, there wasn't really a road map and, wow, it gets way louder if I go this way. Sorry, guys, I'll try to stay right in the middle. But we didn't have that and, you know, Bruce said it was an iterative approach and I think that that's really true. You know, what we had was 1,000 acres on the waterfront of former rail yards, post-industrial waterfront land, underutilized, had some fits and starts on development many, many times. And it was a colossal opportunity because it was so well located. It's right next to South Station, which connects to Harvard, connects to Cambridge, connects down into the neighborhoods in Dorchester and to Quincy now, which has a lot of activity going on, right next to the

airport. Silver Line to the airport connects the south Boston waterfront out to Logan Airport in about 10 minutes on public transit, and had recently really been opened up by these massive public infrastructure projects like the Greenway and the Boston Harbor Cleanup that reconnected Boston and its downtown to its waterfront. So it was sort of too big of an opportunity to waste.

And the driving thought behind using that geography for the innovation district was if we have this much opportunity, a 1,000 acres this well located, we have to do something here that positions it for the future of the economy. It can't be anywhere U.S.A. It can't be like another luxury mix-used waterfront that's not inclusive, that's not really positioning Boston to be as resilient as possible in the face of future economic downturns. Of course, we were coming right out of -- in the middle of the recession, when this all started.

So what we had was that, this sort of opportunity and a mandate to do something better than before. And then we kind of had three key principles that really brought us through the whole thing. And that was first the idea of an urban lab, a place where we can test new ideas. Second, this idea of sustainable leadership that sustainability had to be core to the innovation district, not just in terms of kind of building materials, but also in terms of economic resiliency and sustainability and it sort of writ larger. And then the third thing is this idea of the shared innovation, this idea of inclusiveness and that we should be making it as open and permeable as possible for people that don't normally participate in the innovation economy.

And I think, you know, if I could talk about nothing else, I think I would talk about the rethinking of the public realm ground plain in cities. Like what do you do with your first floor? It's not just about retail, right? It's if you're looking at the innovation district in Boston, what we really tried to do was take our lobbies in our housing

residential buildings and our hotels and District Hall certainly, which is a one-of-a-kind building I'd love to talk more about that in particular, but it's this idea that on the ground floor you could have a permeability that people could just walk into a building that would formally as Bruce was describing be so locked down, right? It's all about like IP and being closed, but why not kind of ask these public ground spaces to do more for our economy. To become places where people can connect with each other where a start-up that's running out of conference room space in their office because they're hiring like crazy, might get a little more elbow room because they have someplace right around the corner where they could sit and work for a couple of hours.

So that's really how we've thought about it in Boston is it's adhering to those kind of principles, the urban lab, sustainable leadership, the shared innovation, and really taking this real estate approach where the ground floor becomes something that it hasn't been in the past. And I think that is probably what I'm the most excited about. I think that has a lot of legs for the future and for other projects.

MS. DEPILLIS: Just give us a little bit more of an idea of how the District Hall works. Can I just walk in and say I'm a company or?

MS. FICHERA: Yeah, so District Hall it's we're not an incubator. I'll tell you a lot of things that we're not. We're not an incubator, we're not a co-working space, we're not an accelerator. We're really a gathering place for the innovation economy. So it's 12,000 square feet of just civic space of a kind of living room for the innovation district where people can come in and work for a few hours next to our coffee shop, hold a meeting. Investors hold office hours there. But we also have event space so we have, you know, theater space where we could have everything -- we've had everything from multi-day, you know, off-sites for clean tech companies and conferences on urban policy and innovation to lunch time dance parties for entrepreneurs. And we have conference

rooms that can be rented for different things. So it's really meant as a gathering place. We have quite a lot of co-working spaces and office spaces that give people a permanent place to call home. But it's a place to kind of strengthen strong ties and work on that kind of weak ties network that Bruce was really talking about and how can we bring those two together so we're building trust face-to-face as people connect with each other, see each other over and over again and you sort of understand that, yes, there really is a community here that we can connect into.

MS. DEPILLIS: Does it pay for itself or does the city just (inaudible)?

MS. FICHERA: No, it's actually it's privately funded and built so I would say it's a public private partnership with a triple capital P. It was a public vision from the Mayor's office to have this gathering place for the innovation district. It was privately funded and built by Boston Global Investors as part of their 23-acre Seaport Square development really as a community benefit as a part of their larger master plan. And then it's actually run by the Venture Café Foundation, which is the not-for-profit sort of sister organization to the Cambridge Innovation Center, which we've heard about today also. So it's really this kind of public vision, private funding and private operation that really keeps it going. But it's a civic space. We have sponsors. We're a non-profit space as well. So it's a combination of sort of event revenue along with sponsorship revenues that really keep us going and we've been open for, you know, eight months or something now so check back with us in a year and.

MS. DEPILLIS: All right, Kofi, so you're current baby is Hunters Point Shipyard. Tell us how big that is. What it means. Where it is in San Francisco, and how it fits in to some of the concerns we see with the tech economy, perhaps driving a little bit of inequality, and just a really inflated housing bubble in San Francisco.

MR. BONNER: Sure, thank you. I will say, Nicole, don't be surprised if I

steal the idea of District Hall and recreate it --

MS. FICHERA: You won't be the first one.

MR. BONNER: -- in the shipyard. I think it's fabulous. You're doing a great job there. So, yes, I am working in San Francisco in a fabulous property. It's 800 acres. Eight hundred acres about 15 minutes from the financial center of downtown and 10 minutes from the airport. It's in the southeastern part of the city and right on the edge of the Hunters Point Bayview Community. And to any of you that may know San Francisco, you would know that the Bayview-Hunters Point Community is a fabulously proud and historic community, but it is also the area that has a significant amount of underemployment and unemployment. And so we work very closely with the community there.

So 800 acres, the property was formerly a naval shipyard, a decommissioned naval shipyard. The property also includes the former home now of the San Francisco 49ers as they're moving down the street to Santa Clara. And the property also entails about a 300-home community that's a public housing development. So we are working with some fairly interesting properties in that portion of town.

What we're working on directly, we started construction, is building 12,500 homes in a variety of prototypes, from walk-up apartments, townhomes, to high rises. We also will be building about 800,000 square feet of not just regional serving retail, but also neighborhood amenities. And, of course, we'll be providing another three and a half million square feet of office and commercial space and R&D space in San Francisco. All these properties are linked with fiber, of course, all linked by 300 acres of Waterfront Park, and they're also linked by a bus rapid transit system.

I think perhaps what's most interesting and most pertinent perhaps to today's conversation, is those things that we're very purposefully doing. We're working

with the mayor's office and the Chamber of Commerce to really introduce some key components that we think are critical to the future sustainable development of this property. There's no question, as you mentioned, Nicole, that there are a number of very large developments that in and of themselves are livable. They're green, will lead and be gold, and they will essentially be sustainable. But I think the critical piece here is we're going out and looking for very specific components to bring to this community.

We're working with a major university in town to bring their STEM campus on the ground and we would hope that over the next six months, we'll be able to initiate the planning and programming for about 300,000 square feet of as I say, a STEM campus there. And the conversation so far has been quite exciting. There's a notion of introducing a high school adjacent to that university piece to also bring some talented high school folks onto the property.

We're also working very closely with some potential technology companies that are currently located in San Francisco, but unfortunately are feeling some of the pressures from the fairly significant growth in the tech industry there. It's no secret that San Francisco has become a fabulous tech hub over the last few years and more recently, many of the Silicon Valley companies are beginning to move their offices into San Francisco further exacerbating some of the pressures in the commercial space. So we have the opportunity to really work with some of those companies that perhaps haven't yet matured to the let's say the Ciscos and the Googles, et cetera, but are really doing innovative work in the city. And we're working with the Chamber of Commerce and the mayor's office to retain those companies and have them grow and thrive within the city, and we'd like to create those spaces.

We recently received approval for an artist studio. There are currently 300 artists working in the shipyard. Well, we just think that creative energy should be

retained as part of our overall development. So we've created and received approvals for a new artist studio and we'll obviously work very closely with the artists to bring that energy and sort of a hipness, if you will, to the shipyard.

So we think these key components in addition to sort of more than mundane redevelopment and community development type features that are already imbedded in the plan, will only, again, make sure that we add value, not only to the adjacent communities, but also to the city, and obviously to our bottom line too.

And I will add that as part of our relationship with the community, we're working very, very closely with a number of key non-profits within the community and a Citizens Advisory Commission that is located in the city. And we provide a significant amount of funding and opportunity to not only provide funding for variety of very important social needs, but we also have local hire requirements and job training facilities that we hope will enable the folks working through the unions to transition onto our properties and ultimately frankly not only work in our properties and gain a, you know, really sustainable wages, but ultimately to live on the properties and grow their families right there within the neighborhood in which they were born. So we're quite excited by the opportunities.

MS. DEPILLIS: Such a cool opportunity to be able to work with that amount of space. And I should also mention that Kofi worked on the Mission Bay, which is another giant rapidly developing space on the waterfront.

Julie comes to us from Europe, where she's worked in depth in a bunch of cities and so what are they doing that we're not? What can we learn from them? Anything or is it all a one way transaction?

MS. WAGNER: Oh, no, it's definitely two-way, definitely. They're learning as much from us as, frankly, as we can learn from them. So Europe has a number of innovation districts and they are highly distinctive from one another, which is a

fascinating learning experience in and of itself. Part of the reason for their variation is their distinctiveness in their regional economies and their country economies, frankly.

So in traveling across different countries, the story of their innovation is radically different and equally fascinating. So let me start with Barcelona because it really was the place that caught our eye. It was the first place where we saw this new geography of innovation. It very much conforms to one of the models that Bruce outlined in the presentation, the re-imagined urban areas model. And essentially what happened there is that in the 1990's, under the new leadership of (inaudible) basically established that there was a need to grow knowledge and innovation clusters. That Barcelona, as well as the rest of Spain, frankly was lagging on a number of these economic clusters compared to their western European counterparts.

So they set their eyes in focusing how can we channel our resources in a discreet area? And they chose a post-industrial area that was vacant, abandoned, neglected and along the waterfront, and they coined this 22@Barcelona. And the work that they did there honestly was fascinating. I mean, the level of vision and intentionality to redo the physical landscape in terms of decking as Bruce mentioned, decking the railways. Creating new infrastructure such as the tram, making it pedestrian oriented and walkable. Making it enticing, building new housing, 400 housing units. Revamping the existing housing units, figuring out which of the historical industrial spaces should we save and protect and which should we let go of. The list goes on and on and on in terms of the physical changes that they made to make this space exciting, vibrant, attractive.

Now, the part that actually I found the most interesting is not the physical, even though the amount of time and resources they devoted to that, but was their economic focus, their economy shaping strategies. And what they basically did, and if I could just put this in a nutshell, is they tried to create economic magnets. And they

saw economic magnets as having several components. That we need universities, so they lured universities. We need large companies. They lured large companies. We need medium companies. They lured those too. And then in addition to that, we need to build incubators. They built those. And then we need to create the kinds of programs and services that would entice and basically create this gravitational pull for other firms to come to 22@ and then to grow existing firms. And this is exactly what they did. S

So in the early 1990's, there is very little economic activity in this area. Today, there's over 7,000 firms and over 2,000 of those firms were created at 22@. This equates to about 84,000 jobs that they now have in 22@Barcelona. So even in the midst when Spain was having real economic challenges, I would always call them up. How are you doing now? How are you doing now? And they sustained, if not grew. And so it's an interesting, you know, in the midst of the great recession, in the midst of what they were struggling with, they still found reasons to sustain. So that's one example of re-imagined urban areas.

There's two others that I just want to quickly highlight. One is in London. It's called Tech City. It's in the east London neighborhoods. And their focus is on the digital economy. And what's interesting about that is that there had been a lot of press about this Tech City. What is it? Is it hype? What's going on? You know, is the ICT tech sector is it really moving forward? Is this just an idea? So they actually had commissioned a think tank to do some real detailed quantitative diagnostic. And they found, yes, there is some real significant movement in the economy in this sector all clustered within these neighborhoods, supported by neighborhoods serving amenities, and it's growing. So they found in 2010, they found over 3,000 firms and are providing 48,000 jobs.

East Berlin, another example, a burgeoning tech sector. The area sort of

has this gritty interesting mix that just is drawing a lot of entrepreneurs, not just from Germany, but from other parts of Europe. And so this is one that we're watching. They've recently initiated a number of networking opportunities that are listed on websites we're you're basically trying to teach and train and connect people very similar to what's happening in Boston. And so there's really growing excitement there and I look forward to watching that one.

The last one that I want to focus on is Stockholm. There's two innovation districts there. One focusing on ICT, the other one is focusing on life sciences, right in the heart of the city and is built on a platform of four very strong academic research universities focusing on life sciences. And so they came together along with the city and a number of the companies there and said we can do more. We can do more even though Sweden is off the charts on innovation indicators. We can still do more. And so they put together this Vision 2025 plan that Bruce highlighted and they're going be building thousands of housing units, new lab spaces, offices, you know the drill of all the different types of things they're going to be adding to their portfolio. They're ultimately aiming to see about 25,000 additional jobs just in life sciences. So if you multiply it by five, we have a good number.

So it has been a fascinating journey personally and professionally to see how these places are growing, how they're thriving. It's been a Petri dish of learning and it's been a pleasure writing about it.

MS. DEPILLIS: Awesome, thank you all for telling us about your particular projects. And the first question I'll throw out to the panel is this question of competition because if everyone does what Bruce says, they're going to start innovation districts in their own cities. And theoretically, there's only a finite number of research dollars and talent and venture capital funding and we all know how cities compete against

each other generally for big companies. So if this is a zero-sum game, can you all and do you all currently think about how you can get a talented person or start-up company from going to your project rather than somebody else's?

MS. FICHERA: Yeah, maybe I'll grab this one. So, you know, I think when I first started working on this stuff, this innovation district stuff, there were much more questions about, you know, Boston versus Cambridge, and like all of this stuff and it was a more sort of, you know, feather in your cap approach of like we've got X company to move here like, go us. I think that the conversation has really matured since then. I think it's evolved in the last few years and that the approach now for innovation districts is I'd say definitely it's not as zero-sum game. I think what it's about is asking our cities, our physical spaces, the existing economic assets that we have and other ones that we can grow, how can we ask these things to work harder for us?

You know, my background's in architecture, so I can't help but look at things from that lens, but, you know, that spaces should really work harder for us and for our economy. That with the amount of time, the amount of capital investment, the amount of energy that goes into making something physical, whether it's a building or a piece of transit infrastructure or even just like a build-out in an office, right, I mean, these things all cost a ton of money and ton of energy that we have to ask more from them. We have to say not only are you kind of keeping us dry overhead and stuff, and all the things that our buildings are supposed to do, but are you helping me connect with the ideas that I need? Are you helping me connect with the resources that I need? Are cities part of the toolbox that can grow jobs and grow the innovation economy? So I think as soon as you transition the conversation from the zero-sum game to this kind of more holistic approach of how cities can just work harder for us and worker for the economy in general, you start to have a richer, more productive discussion about how we can really

move forward into the future rather than, you know, how can we kind of fight over this like, you know, one company moving here versus moving there. And I think it's a more productive way of looking at it.

MR. FRY: So in Philadelphia, we're just happy to be in the game. We don't even think about zero-sum. No, I think --

MS. DEPILLIS: Don't talk down Philadelphia.

MR. FRY: No, no, no, because I think Philadelphia along the way sort of lost its confidence and viewed itself as a city that couldn't possibly compete with Boston or New York. Just the very process of going through this whole innovation district formation has brought out so many potential, you know, partners and allies and community organizations that want to be involved. It's been a terrific surge of energy that we're experiencing right now and so we're sort of pre where Boston is. But we're in a very good place because I think people are now getting their nerve back and saying, yes, we can go out and we can compete, and at the same time that all of this is going on, what's happened particularly in Center City, but also in University City and in other really sort of, you know, forlorn places around the city, those neighborhoods have been revitalizing by themselves. And those young people who are doing that are looking for two things, really good jobs and really good schools to send their kids if they decide to stay in the area. And right now we don't have, you know, the level of job growth that we need to have and we certainly have a virtually tragic situation with our public schools. And so I think we're getting organized around the fact that people like Philadelphia. It's convenient. It has great history, great culture, great restaurants. It has a good quality of life play, but it's not economically set up to be as successful as other places like Boston and San Francisco and New York. So what are we going to do about it? And our response is going to be this innovation district.

MS. DEPILLIS: Rather than handing out million dollar tax incentives.

MR. FRY: Exactly.

MR. BONNER: Well, I would just say that innovation by its definition sort of seems to anew and growth and change. And look, innovation requires talent, and talent fortunately, education institutions are pumping out the talent regularly so it's our obligation in some respects to create those opportunities for that talent to be nurtured and to in effect grow and change and create new ideas. And I think that what we're really talking about is the creation of these physical spaces and provision of capital that enables the growth of new things.

Now, there is competition. There is competition because there's only a certain amount of physical space available for these companies to grow into. So I think what's important is that we see this more as a regional issue as opposed to just a specific locational issue in a particular city. And there are, you know, there's no question that the most successful and most well capitalized companies will end up in the shiniest tallest buildings. But there are constantly at a very sort of grass roots level, there's always change and new companies are forming and the question is what do we do with those new companies? Can we create spaces for those new companies to feel comfortable to grow and change? And as they get to a certain maturity, they probably will move on to another location or certainly spread out into other locations. But I do think that it's not a zero-sum game at all and I think it's certainly well worth the effort in trying to nurture the growth of new companies.

MS. DEPILLIS: Julie?

MS. WAGNER: A quick thought. I think the mantra really is collaborate to compete. Take Stockholm, two very different innovation districts, they actually are coming together and creating new products and markets, new products and services by

basically brainstorming and identifying where we can create new opportunities together and essentially creating what is called a convergence economy and reducing their overall risk. So collaborate to complete is key here.

MS. DEPILLIS: I think they call that coopetition, the game.

MS. WAGNER: Is it #coopetition, right?

MS. DEPILLIS: Coopetition.

The last question before you all get to pose your own and sort of start thinking. So with -- we are talking a lot about cities here, and that is kind of, it seems like, where we are all headed, urbanization is a thing globally. But if you are out in some small town, do you just have to move to a city participate in this? Or, how small can innovation district get? Is rural America is just, sort of, getting to be left behind in this whole equation?

MR. BONNER: Well, I can offer up Lancaster, Pennsylvania, which everyone's image of Lancaster, Pennsylvania is, you know, the Amish farms, and a wonderful rural, you know, quality of life out there. In fact, there's a 50,000-person city sitting within Lancaster County, Lancaster City, which is where Franklin & Marshall is, where I used to work.

And what we did is, we looked at this very compact, very diverse, very interesting, historically and otherwise, city, and said, you know, what's its future going to be, because it was -- it was really struggling, and I won't go through all the details of this, but one of the things that actually was in that city, was a massive rail yard that bisected one side from the other. And on one side of that rail yard was a 65-acre Armstrong plan, with about 200-plus buildings. And on the other side of that was the train station that went to Philadelphia and to New York.

And so we said to ourselves, is there any way to reintegrate the street grid here, and sort of nip this little city back together again, because we thought that would give the promise of all sorts of very interesting economic possibilities and then, you know, the housing development and things like that.

So we actually demolished the -- and this is a little 2,000-person Liberal Arts College, as developer, we demolished the 65-acre 200-building site where Armstrong was, through a lot of great help from then Governor Arundel; we actually relocated the rail yard to a location about two miles up the yard. And we, you know, basically ripped up the tracks and are now, as they speak -- as I speak now -- they are reconnecting the street grid.

So I don't think we should count out those small cities or those rural areas if they are determined, and they have a -- you know, a vision of what this can be. And the fact is, it's a very, very well-located, you know, city. It has a lot of potential, and I think its future now looks very different and very possible compared to where it was a decade or a decade-and-a-half ago. So I'm a big believer that these places that are the unlikely, you know, ones can actually make a go of this as well.

MS. FICHERA: And I think, if there's a takeaway maybe, that's sort of very universal, I think, from these discussions, is that, you know, connections are the sort of engine of the innovation environment. You just can't get away from how important connections are. So I'd say for any location, whether it's, you know, waterfront or landlocked, or urban or rural, or big or small, I think the evaluation that you can make is probably two things. And then first of all, you know, as Bruce always quotes Dolly Parton as the, "Figure out who you are and be it on purpose," fits great. I mean, it's fabulous. And we were also discussing the other day, the amount of innovation in the agriculture industry.

SPEAKER: Yes.

MS. FICHERA: And in some of the -- we talk a lot of the Venture Café Foundation, and pointing Carlos, from our team out in the audience here, about this non-sector specific approach, and also about the fact that it's not all about tech, right. I mean, their entrepreneurs are also their crafts people, their artists, the artists' studios you have in San Francisco. You know, the innovation district in Boston full of artists' studios, and the artists were the ones that initially built that community, and really made it a place that people wanted to be in the first place.

So I think if you take this -- figure out who want to be on purpose, right, and then think about, are connections working or not in your place, wherever that is? Whether that's connections, kind of, intra-connections, in the town itself, or the resources that people need, are they connecting to the people that need them? Do the schools sort of know how to talk to the business community? Or, if it's beyond, maybe there's a great ecosystem there, but for some reason it's not as well connected to the kind of regional economic infrastructure if it needs to be.

Do you need a rail link to a bigger city? Do you need to think about your highway infrastructure? I mean, I don't know. Every place is different. But this lens of connection, that was the thing in the Boston Innovation District that let us take things as disparate as, how are we going to work with the business community? How are we going to think about housing? How are we going to think about infrastructure?

The only thing that really united all those conversations in a way that allowed us to kind of move forward productively was this lens of connection. And how could we use each of these sorts of tools to better connect people with each other? And so, in our case what happened was, you know, we had a non-sector-specific approach to the business community because for us, helping companies like Artaic better growing at

the intersection of the creative economy and technology; or at the intersection of ecommerce and health.

Those, you know, sectors that don't play nicely within the mixed codes designations, are like those are innovative. I mean, one of the hardest things to do, working on the innovation districts was to make a database of companies in the innovation districts and categorize them. It was a nightmare; of the interns, like, the poor things, they were, like, so good. We worked on this like double-tagging system, it was so complicated, which is great. I mean so that merely means that there are companies that either are doing stuff that doesn't want to be categorized in the traditional sectors.

And then with housing, you know, housing is a fundamentally, sort of, private concept, the way that we look at it in this country is like a nuclear family, and especially in urban housing, you know, you have a -- you walk through the lobby, you go to your elevator, you go to your door, and you go inside, and that space is yours and that's it. But what we said was, how can you take something that's as private as housing and look at it through this lens of how can it better connect people with each other.

And what we really came up with was, yes, smaller units, and people focus a lot on micro units when they talk about these things, but it's not just about the square footage, at least not the way we did it in Boston, it's about how do you take the kind of public connecting functions that a house can perform, and maybe move those out and do them better in an aggregated way, in a different part of the same project.

So in our case, it became really about connection spaces, again, at the ground level, and in the lobbies in conjunction with kind smaller units, so that an entrepreneur could live in one of these units and then not to have to rent co-working space elsewhere because they could work and take meetings with investors, and then kind of right in the base of the building where they live, as a part of their residential kind

of package, or whatever.

So I think that that's the lens of connection, that's probably the most important thing that I would say to any place, to evaluate when you are thinking about building your innovation kind of projects.

MR. BONNER: I would just say, very briefly that innovation happens anywhere and everywhere. And so the fundamental issue is, how do you grow that innovation? How do you grow a business from that, how do you nurture it? And I think it takes two things. It takes connectivity, and every jurisdiction has to determine how and what that connectivity is or should be. And it takes capital, and to the extent you can bring -- innovation is present, bringing forward the connectivity and the capital, should enable jurisdictions to create something, at least the beginnings of an innovation district, or an innovation garage, or something.

Because let's face it, around the country there are all kinds of wonderful opportunities for -- or examples where people have grown ideas, and they've been able to stay within those particular locales and grow the ideas into many other businesses, and the question has always been, how has that locale assisted in the growth of that business?

MS. DePILLIS: And they are all definitely looking for capital. All right, anybody have a question? Ma'am?

MS. McCARTHY: Hello.

MS. DePILLIS: Oh, please state your name and your affiliation?

MS. McCARTHY: Ellen McCarthy. I'm the Director of the D.C. Office of Planning. Many of the cities that you are talking about like Boston and San Francisco, here in D.C., have access to that talent partly because we've created effective cities in places. But what that seems to mean also is then introducing enormous competition for

housing and having to deal with very high housing prices. Which I know, I had read, was a problem with the innovation district in Boston. So have you found successful strategies for dealing with that in your districts?

MS. FICHERA: I guess -- you mentioned Boston, so I can jump in first.

SPEAKER: Go ahead.

MS. FICHERA: Housing is an absolutely critical piece of this puzzle, it's critical. And I think that there's still a lot of work to do. I think that the -- you know, thinking about this idea of the urban lab, and it was the place where we started with housing in Boston and say; okay, we are going to be building housing here anyways, we have developers that want to do it, what do we want that housing to do? How do we want it to do things better than it's done in the past?

We've made progress, and we have these new projects like Factory 63, 315 on A, and Pier 4 on the Waterfront, that are we thinking this collaborative space, and how can we kind of build density and sustainability into these housing projects from the beginning. But you know, to be honest, I think there's just so much more work to do on this, and I don't know -- I don't know what the exact right answer is. I think that there's a lot of experimentation they'll have to do. And Kofi is nodding; I think he probably has a lot add with what they are thinking about in their development.

But I'd say that, you know, one thing that hasn't been cracked very well at all, is what happens for kind of multi-generational housing, right. And so one thing I would be really interested in seeing, and I hope somebody is working on some brilliant project somewhere that I don't about, is how do you take this idea of kind of connected, shared, infrastructure built into residential projects, and then how does that translate for family living, right?

How do I, as a 20-something person, know that I'll be able to live in the

city 10 years from now? Not just from a cost perspective, but actually from the fact that I need housing that's conducive for a family to be kind of living together. And I don't know what the answer is to that, or I think you probably at a really key part of this discussion, and something that needs further experimentation and investment.

There is a project in Boston that I always call it as an example here, but which is an older project called the Piano Factory. The Piano Craft Guild Apartments in the South End is the former Piano Factory, but it kind of takes up a whole block and right in the middle there's this big, beautiful park like a private kind of shared park, and it was artist housing when it was built in the first place, and there's these wonderful stories about families that grew up in -- what was then a really rough neighborhood, the South End in Boston.

But they were able to kind of grow their families there, and they had this kind of asset, this shared asset in the middle, this kind of -- a park that they could all use together and build a community within that one building. So I think -- I think there's a lot more to do, especially on this multi-generational approach.

MS. WAGNER: I guess I would answer this -- looking at Barcelona, it's a more mature innovation district, it's been around for a number of good -- overall over a decade. And you know, I've had this conversation with them about, how do you balance this in terms of, you have things rising, the prices are increasing, as more firms are coming in, what about the housing? What about affordability? And essentially, you know, their answer is, well, we are never done.

MS. FICHERA: Right.

MS. WAGNER: Right? So there is no end to this. This is about consistently evolving and checking in, and getting a sense, what more do we need to add. Is here more affordability that we need to be focusing on? You know, and how you

make that adjustment? How do you pivot in a way that you make sure that you're standing true to your principles? I mean, this is really what they are -- this is how they are operating even still today. They are consistently reevaluating how they are doing and where they need to go.

MR. BONNER: So I have -- I have two, sort of, responses I think. One is sort of specifically with what we are doing. You know, we are fortunate in that we have 800 acres, and in the 800 acres we are building 12,500 homes. Within the 12,500 homes we have a variety of housing types. As I said earlier, we have town homes, we have podium products, we have apartments and we have high rises. And within some of the homes we also have what we -- multi-generational type facilities, so people, of various ages and maturities can live within the same home.

But I think the key point is, as part of the negotiation with the city and the community, we have 32 percent of those homes will be affordable. And the key with the city was to ensure that the affordability was over a very wide spectrum. It's not just the sort of public housing, low income, very low income families, but also the workforce families. And so we have -- of the -- as I said, 32 percent of the homes will be affordable, and it's, again, sprinkled in a -- almost exactly the same kinds of homes as the folks who will be living in the market-rate homes.

And I think that's important for any real thinking of development in a fairly significant scale. So that's how we are dealing with it, and obviously there are people who have the access to all the amenities living within the community. But there's no question, that housing is a significant issue. I mean, San Francisco is blessed with this wonderful surge in job growth, and with that creates a variety of issues that you are probably experiencing here.

But part of that problem, as somebody who used to work in the public

sector for many, many years, is the fundamental way we look at the creation and distribution of housing. We think of housing as a local asset, and we think of jobs as a local asset. Actually they are regional. If you think about, both housing and jobs are regional assets.

Unfortunately, the job that's created in San Francisco the person may be living in another city, and would like to live in San Francisco, and that's what we are trying to deal with, but the city in which they live may have a pretty politically stern policy against certain kinds of homes. And that happens in the Bay Area, unfortunately, quite a bit.

There are some cities that have some of the highest office rents, have a very low density of, say, housing policy. And I always sort of go back to how we think about these assets. So one of the reasons we are never done, is because we continue to think about them in a less-than-strategic fashion, and we tend to think about them --

MS. FICHERA: Well, that wasn't my point, but you know --

MR. BONNER: But that's how -- unfortunately that's the result of what happens if you -- if one city has to try to deal with the jobs-housing balance --

SPEAKER: Yeah.

MR. BONNER: -- and another city says, well we want the jobs, we don't want the housing. And another says, you know, we'll do the housing and we don't want -- you know, it goes on and on, you will never, in a region, ever get to that balance where everybody actually wants the jobs and the -- and the tax dollars associated with the jobs.

So I would just say that from within our development, we think we have a policy in place that is quite egalitarian in some respects, but even when we are finished, and we are hugely successful, this problem will remain.

MR. FRY: Right. Ad new shouldn't forget the importance of local

schools in that mix as well. I think of all the progress we've made University City, in certain neighborhoods, it's been, I think, not entirely but mostly due to the creation of some very good accessible neighborhood schools that do a great a job, and provide a context for people wanting to move into that neighborhood, and stay in the neighborhood.

MS. DePILLIS: Thanks for a really key question, and I appreciate the real talk on density and neighborhoods opposing housing, it's very important. All right. Okay. In the middle, there.

MS. BUELL: Good morning. My name is Catherine Buell, and I'm the Executive Director for St. Elizabeth East, and unfortunately the East Campus has been wrapped up in the controversy about the West Campus, and the slow movement for the DHS Consolidation, but we are building an innovation hub on the East Campus. We are very excited about it. We've identified corporate partners, we've identified universities who are interested in coming over. We are actually opening a Demonstration Center this summer that's very similar to the District Hall.

And my question is, what kinds of partners have you attracted that are more philanthropic partners who are outside of the typical partnerships that governments another innovation hubs look to build, that have helped you build these innovation hubs where you are at?

MS. DePILLIS: Good question. Who wants it?

MR. FRY: I don't have any yet, but I'm looking. You know, it's interesting, in my experience, particularly in Philadelphia, they are risk-averse, and so they want to see -- they want to see progress. In fact, everyone is risk-averse except for, in the case of the universities, in the (inaudible) one first they staked out some of the early initiatives, and then gradually I think with progress and the confidence that created, we saw the foundations wanting to come in. We saw the private sector become

engaged.

But I think that's an issue of risk, and I don't think that, you know, that the risk, and I don't think that, you know, the risk profile of foundations is all that high, and you would expect, actually the opposite. Now I know in Detroit that's probably a different story, but I can't tell you, in Philadelphia that -- we have incredibly philanthropic resources and support. But it generally, in my view, hasn't been there, sort of, at first. It waits till you sort out the initial set of issues, and then they can come in and be extremely helpful and collaborative as you go along.

MR. BONNER: And I think that's very well said, very politically said I might add -- very well said. But there's no question that you would think that the philanthropic organizations with all the good work that they do, in a variety of other context, would see that the opportunities to create jobs and grow jobs and generate better qualities of life, if you will, for the population, would be investing, perhaps, in some of these opportunities in these innovation districts in some urban redevelopment type projects.

But that absolutely doesn't happen very, very regularly. I know that Detroit certainly -- it's certainly I think a wonderful option there --

SPEAKER: Right.

MR. BONNER: -- but I also think Cleveland has done some very interesting things. Some of the Cleveland foundations have done some very interesting things, but we are still looking to see if we can explain to the philanthropic organizations in the Bay Area, what a wonderful opportunity it would be to invest in what we are doing.

MS. FICHERA: I think in our experience with the Venture Café Foundation, we are a nonprofit, and we run Disertin, and we don't -- you know, we don't have any kind of solidified partnerships yet, but I mean we are new at everything we do

so, again, check back in a year. But I think that what we are finding in some of the other cities that we are doing work in, like St. Louis, opening up some conversations in Miami, and certainly Detroit, is that there can be a -- there can be a symbiotic relationship between the sort of real estate capital component.

And then a philanthropic capital component that in our case has been more program-based, so are really building programs around kind of K through 8 integration into the innovation economy at a younger age, and other things that, you know, we really haven't built yet, but we've been having, kind of, initial discussions about on the kind of storytelling component around innovation.

How do we get the word out locally or nationally about something that's going on in a place? In a way that makes people feel that they can connect to it. So I think that in our experience it's been -- again looking at Carlos -- I think it's a combination approach between the sort of real estate financing coming from real estate partners, and kind of government partnerships and things like that; and then the philanthropic funding coming in on a more program-based approach.

Not to say that I think, you know, that couldn't be rethought, I think that all of these are a more iterative approach is probably always a really good way to go when you are talking about innovation.

MS. DePILLIS: Yeah. The district has some -- any challenges when it comes to philanthropy, lacking in any industries besides federal government, so Catherine has her work cut out for her. We have to take a last question, because those were such good questions; so in the back there; no, you; yeah, I'm looking at you. Big, black glasses, cool.

MR GONZALEZ: I am Henry Gonzalez. I'm from the Small Business Administration. You guys spoke a lot about striving innovation districts in what is

considered dilapidated areas, or economic restructures. Do you think that these innovative developments of these innovation districts can be misconstrued as another form of gentrification?

MS. DePILLIS: Saved that one for last.

MR. FRY: I will -- oh, please, go ahead.

MS. WAGNER: I mean I think -- we are really looking at these as building on unique economic assets, right. It just happens to be then, in some of these cases there is available land, with lower land rents that actually make this a possibility in one place. But in real -- in other cases, right, there are three other -- there are two other models, the other is the Anchor Plus. It's really about building on those existing economic assets, and then as much as possible infusing the inclusion component in right from the beginning.

I have to say frankly that in talking with district leaders in the United States, I have been really impressed by the thoughtfulness about the level of inclusion when thinking about growing up, you know, these districts, and having strong economies and strong clusters.

How do you do that hand-in-glove with housing and schools? As someone that has been looking and working on both sides of the Atlantic, frankly I must confess, aside from the 22 (inaudible), that the United States, and that these districts are being more thoughtful here about these very issues. So, I think the other side of the Atlantic needs to learn from these leaders here on this subject.

MR. BONNER: Well I would just quickly say that the -- I had mentioned the affordable housing component within our communities, and obviously there are preferences for those who are immediately adjacent to the community to come into these new developments. But we also have a fairly significant community benefits program that

goes beyond the housing. The community benefits -- the (inaudible) Community Benefits Program also provides for down-payment assistance programs; and as I mentioned before we provide funding and opportunities for hiring for folks from -- directly adjacent to the community.

We have a CY Program, and we have one more focused on the -- as we call it -- District 10, the Bayview-Hunters Point Area. We have funds set aside for health and wellness programs. We have funds set aside for education augmentation that we are working with the community to best understand; are we better off investing in the existing school system that's adjacent in the community? Are we better off building the newest campus of some kind within the district?

As you can see, it's a collaborative process. Not everybody in the community is in agreement as to how best to spend the funds so we, almost on a weekly basis, many of the folks on my team, interact with the community so that we can understand best how to, frankly, bring them up with us.

SPEAKER: Mm-hmm.

MR. BONNER: And frankly, incorporate their needs into our development.

MR. FRY: Right. And I think your question is so important. I think one of the great benefits of this Promise Zone designation, it's going to allow all of us together to actually squarely address those issues, and to do it in a collaborative framework over a very long period of time with very committed and invested, you know, community partners, and universities, and hospitals and -- because this has really been the Achilles heel of a lot of these developments, is what you are talking about.

SPEAKER: Yeah.

MR. FRY: And hopefully the Promise Zone gives us a framework to go

at that together.

MS. FICHERA: Yeah. I think -- I mean you're hearing pretty similar stuff from the Panel. I don't think gentrification is a foregone conclusion. I certainly don't think it should be a foregone conclusion in these projects. For me, this always comes back to the fact that we to remember, like, cities are for people, right. Cities are for people, cities aren't for companies, or for patents, or for apps, they are for people.

And so, we can't go into this saying, okay, we are going to make a neighborhood that's really great for X-type of company, because if we do that we are doing it wrong, right. If we do that, we are doing our real estate a disservice, we are doing our streetscape a disservice, we are doing our cities a disservice, we are doing our children a disservice, if we -- if we look at it that way.

So, you know, I have had conversations with people that talk about this and say, you know, well, this is gentrification, this is just how this works. I don't think that's really a good enough answer. I think that, you know, the fact that we are having a discussion at the beginning of this a, you know, this is sort of coagulating into a sort of movement.

As Julie said, if we keep talking about this from the beginning, I think we have a much better chance of actually building inclusive neighborhoods for the future. And, you know, just to give one more example, I keep talking about this idea of the ground floor, that's really important. You know, I think -- you know, in Boston you can walk through the city, and in any given neighborhood, you might be able to -- there might be sort of innovation assets around you, right. But a lot of times they are up on the 14th floor, and you have to through an elevator and get a name tag, and go to a security guard, and go upstairs.

And you might know that they are there if you know somebody and they

bring you with them. But walking on the street you would never know it's anything but a sort of law firm in an anonymous office building. I think that, you know, certainly what District Hall tries to do differently, is that we are on the street level, the building is a weird shape. It makes you ask a question when you walk by. Like, what the heck is that thing?

And there's a restaurant inside, and a coffee shop, and all of these really clear signals, come inside, come participate in this. So even if you've never heard the word innovation before in your life, you can walk into the building and grab a coffee, and understand what's going on around you because we are trying to tell stories about what's happening, and how you can connect and be a part of it.

And so I think that's a fundamental reshaping in the way that we are thinking about inclusiveness in a physical way, and physical real estate. I don't think it's the end of the conversation, and it's like, good job, we built this, we are (inaudible), we are done.

I mean, I think we have a lot to learn, and really then incorporate that type of thinking in the future. But what kind of message are we sending about permeability, about access, as we are building these neighborhoods? Or, kind of transforming them in physical ways; that might have this kind of economic implication that in the future that may be different?

MS. DePILLIS: Got it. All right, thank you all. I'm so sorry we have to wrap up; so no more questions. I am now going to thank the Panel, and we are all going to leave.

And before, though, we do that, I'm going to introduce your next act, which is Bruce again; and the amazing Mayor of Chattanooga, Andy Berke. Do we leave before you guys come up? Okay.

SPEAKER: (off mic).

MS. DePILLIS: Okay.

SPEAKER: Need a mic.

MS. DePILLIS: (Applause) Thank you. Thank you. Just to finish this up. Mayor Berke was elected in Chattanooga in early 2003, before that had a distinguished career in law and public service, the Tennessee Senate, and has made quite a name for Chattanooga with their incredible 100 gigabit fiber connection. And is one of those smaller cities that you don't necessarily always think of as getting on the map of this kind of stuff, but now is. I thank you all.

MR. KATZ: So, thanks Lydia. Let me get connected up here. First show of hands, how many people have been to Chattanooga?

SPEAKER: Oh, right.

MR. KATZ: That's pretty good. Okay.

MR. BERKE: Come back?

MR. KATZ: Yeah. You never really know in Washington, D.C., whether people have gotten out much. So this is a real thrill to have you at Brookings. We met about six months ago and, you know, if you want to see affirmative energy in this country, go hang out with mayors, right. Particularly mayors who are just so positive about their place and the distinctive culture they have, and the real economic social, environmental potential.

And Mayor Berke really fits the mold. And so when some of us think of Chattanooga, I mean, a couple pop in the head, most polluted city in 1970, wasn't that the sort of label? But then a city that began to transform particularly around physical space, and particularly around the downtown, and began to send the signals slowly but then accelerating, hey there's something happening here. How would you describe the Chattanooga over the last, let's say, 25, even 50 years?

MR. BERKE: Well, if you think about Chattanooga in 1969, Walter Cronkite called us the dirtiest city in America. And the good news was that the air got cleaner. The bad news was that it to cleaner because all the manufacturing jobs picked up and left. And so in the 1970s we saw tremendous declines, and even in the 1980s as I was in high school, I used to tell people, you know, if you had a date, you could want to take them downtown because you could be alone. This was a great place to --

MR. KATZ: Some has got to tweak that. That is really tweetable.

MR. BERKE: And so we were the only city that lost more than 10 percent of our population in the 1970s and '80s, they gained it in the 1990s. And this was because -- I think we learned the lesson of hanging on to our past for too long, and you could really see in the 1980s that people started to plan for what was the next stage of the Chattanooga story. And now if you to Chattanooga, and then if you've been there and you've talked to community leaders, everybody talks about, you know, the Chattanooga story, and the Chattanooga way.

This is kind of a myth that's grown up about public, private partnerships and the way that we plan for the future, because we have this horrible legacy of the 1970s in decline, and then what you see now is we have a vibrant downtown. There's tons of people down there, there's energy, we are the only home for the -- in the United States for Volkswagen manufacturing, and we have this gigabit per second network that Lydia talked about which is 600 square miles of fiber optics that run to every home and every business in our area.

MR. KATZ: So let's build from that. Because again, it goes really back to Lydia's question. We think about innovation, or perhaps we think about innovation districts, and your mind immediately goes to Boston or to San Francisco, or Seattle, or to New York. One of the reasons why we asked you here today, is we see, really many

cities in the United States in metropolitan areas, really having the distinctive potential to leverage their own assets.

So you mentioned gigabit, what do you see as the platform for innovation, both in terms of the infrastructure -- this really unique infrastructure? And you should describe how that has come to be, but then also companies, entrepreneurs, different sectors and clusters that can really build from that?

MR. BERKE: Well, one of my concerns when I read your book was, we talk a lot about Boston and Philadelphia and places, but Chattanooga is a mid-sized southern city, and so we need to be the example, to me, of how innovation grows and expands throughout our country, because it can't just be Boston and San Francisco, it's got through our mid-sized cities. So we are excited to be at the forefront of this -- of this movement. The gig has really made a -- I think a transformative -- had a transformative effect on our city.

Again, we thought of ourselves in the past as a manufacturing town. We did in 2009 apply for Our Funds through -- our Electric Power Board to get this smart grid, started out as the smart grid, every place in our city. We receive that funding and about \$115 million of Federal funds came in through the stimulus, which, combined with about \$220 million of bonding allowed EPB, that's again, the Power Board to run the smart grid, all throughout our city.

Now, that's giving us tremendous energy savings and lots of positive things from smart grid. The second part that it did, was having that fiber optic that goes that last mile. A lot of people have fiber optics; it actually connects to homes and businesses in every single location, because everybody gets an energy bill. What that does it allows us to reach every person with gigabit per second technology. So we have the fastest, cheapest most pervasive Internet in the Western Hemisphere. It's an

incredible asset.

And what that really has done, is change the way we think about ourselves. It's not just about the asset, all of a sudden Chattanooga thought, wait, we are at the head of the curve, not at the end. And so we start having gig tanks which are these places where people come together and we have teams who are building on innovation and ideas. We have 48-hour launches, and you saw this tech and innovative ecosystem really start as a result.

MR. KATZ: So what kind of companies are either, you know, evolving, adapting to this possibility, or literally coming to Chattanooga because of what you represent?

MR. BERKE: Well we certainly pitch the capacity of the gig to everybody who comes, and people understand, listen, this is basically a bigger pipe, we can always use a bigger pipe. But to me the exciting parts are -- I want to give you an example of one company called Quickque, started up with the idea that there was -- that there needed to be some advancements made in text messaging, and in particular the way that you make reservations for restaurants.

So they come together, they went to a 48-hour launch which basically workshops the idea, they walked out and they hired only local developers, and then they got, really, a small amount of local capital. Great story for us, because it's all local. They started developing this app, and then they went to a local company called CraftWorks, which owns, for example, Gordon Biersch, many of you have been to a Gordon Biersch Restaurant.

So they team up with an existing business, and they start to use and demo their work. Now a couple of months ago, after a little bit -- about 18 months after this initial 48-hour launch, Quickque sells to OpenTable for \$11.25 million. Now we don't

see those kinds of exits in mid-sized Southern cities that often.

MR. KATZ: Right.

MR. BERKE: And more importantly OpenTable decided to keep an office in Chattanooga as a result. And so as I've told you before, to me, what this is about is the importance of pairing up existing businesses in small new companies and the way in which they can truly build a bridge together that brings innovation to an area.

MR. KATZ: I clearly have been in the wrong business. That could be a whole another, you know, sort of form. Think about the talent pool in Chattanooga; your high schools, how far back you bring computer science into K through 8, community college, UT. So what's that ecosystem look like? Are you producing sufficient talent, particularly in this convergence economy where tech really is disrupting some of the other sectors?

MR. BERKE: This is a struggle for mid-sized Southern cities; I mean it's going to continue to be. I know President Fry talked a little bit about the need for great schools in an innovation district, and this is a place where we have to continue to grow. If we are going to be this great city we have to be more inclusive in terms of spreading that talent pool, but that helps not just the people we are spreading it to, but everyone, because we'll have the base of talent that we need to continue to grow this ecosystem.

I mean, if you look at what's happening now, we have tremendous energy. And I highlight the Quickque story because it's so local. But what I hear a lot, too, from the developers as I go around, is we need more. We need more that's constant -- constant drumbeat of, we need more. And so are engaging the local university. To me, they are a critical part of an innovation district because every person that they send out, who is smart and thoughtful and creative, really transforms a city.

MR. KATZ: So, take us into Chattanooga, virtually. Is there literally a

district? I mean is there, you know, 50 acres, 100 acres 200 acres of land, either in the downtown or near downtown that already is occupied by some of these innovation assets, and is the organic place for this, or are you in sort of a Boston situation where you literally have to reconfigure and re-imagine a portion of the city?

MR. BERKE: Well we really don't 50 acres in our downtown right now, which is both -- which is great, and also a little bit different than some of these other places. We have seen, actually there was a great deal of community engagement on the South Side of Chattanooga, and you started to see accelerators and new entrepreneurs on our South Side, it's actually our Main Street. So several years ago, there was a question earlier about foundations.

MR. KATZ: Right.

MR. BERKE: Our foundations engaged -- have engaged in a couple places in Chattanooga. One was along the waterfront, and there was -- if you've seen the aquarium, that was really the first transformation of Chattanooga's Downtown. The second place where you've seen a lot of public, private partnership is along Main Street, which kind of bookends and another side of downtown. If the water front is down here, Main Street --

MR. KATZ: Right.

MR. BERKE: -- there is all of downtown, and then Main Street is on the other end. And you start to see a tremendous amount of change in that area. Large part of because of entrepreneurs, but also housing is getting gobbled up, and you see coffee shops and those indicators that say, wait, young, creative, innovate people are right here.

MR. KATZ: So I remember going to Chattanooga in the late 1990s, Ken Hays was here, and I remember the Mayor, at the time, took me up to the sort of roof of City Hall. And we sort of -- he said, look south, what do you see? I'm from Brooklyn,

New York, so I see trees. I mean, is this a trick question, you know? And he says; that's Atlanta coming.

How much of what's going on in Chattanooga is a drift up of Atlanta talent because of what you represent? I mean, really, there is an unbelievable quality of life in that city, and how much of it really is a broader regional or even national phenomena?

MR. BERKE: I think it's broader than that. Chattanooga is a quality of life city. The reason that people come there, they live there, they put their businesses there is quality of life. And so if we are not making the decisions at City Hall and elsewhere that bring quality of life, then we are losing ground. But what I see, I think is Atlanta is its own animal.

MR. KATZ: Mm-hmm.

MR. BERKE: And they've got -- they are expanding all the time, and Chattanooga really is a place that we feel like we have such a distinct identity, and we are building this mid-sized city profile that we let Atlanta be what they are going to be, and we try to have our own Dolly-Partonesque existence.

MR. KATZ: She's not from Chattanooga, right?

MR. BERKE: She's from Tennessee; she's not that far, yeah.

MR. KATZ: There you go, yeah. At some point she's going to sort of call Brookings and say, what's going on?

MR. BERKE: We have Usher, we have Usher, so, I mean.

MR. KATZ: She should have trademarked that thing, I mean a long time ago, if I get a dime for every time I mention it. So -- and folks get ready for questions, right? This inclusion question, right, which is really fever-pitch frankly, as it should be in this country, because of the growth of the incumbent quality, which has really just been

heightened and sharpened in the aftermath of the recession.

How do you answer that question in the context of Chattanooga?

Because again, having been there, the downtown is incredibly vibrant and distinctive, but you can go to areas and neighborhoods that are really not that far away and see hyper poverty, and know that there really isn't that connection right now.

MR. BERKE: This is really an important question for us, people don't think about Chattanooga this way, but there is a recent study that came out and had the 10 biggest raises in rents in our country over the last five years, Chattanooga was number seven.

MR. KATZ: Wow.

MR. BERKE: So when you think about a vibrant downtown, we have that vibrant downtown, the consequence of that is tremendous desire for housing, and particularly rents. It's driving up our rents, and we have to figure out these ways to combat it, so, you know, at least we are trying to do a few things which -- establish a taskforce about housing and downtown. We will be putting together a pilot program that a base -- essentially will allow for redevelopment, but only if certain portions of the buildings are accessible to affordability.

We are pushing towards a housing trust. Again all of these different elements, but you want your city to be desirable, you want urban areas to be the place where everybody wants to be, and the consequence of that is, that if you are not thoughtful and proactive everybody will want to be there, and so the people who get there first tend to be the people with money.

MR. KATZ: Thoughts, comments. Right over here.

SPEAKER: No. It should turn on itself.

SPEAKER: Okay. I mean, I could shout.

SPEAKER: You can go ahead and shout.

SPEAKER: Okay. I'm Demetrius (Inaudible), I work at The World Bank. A second story, I wanted to ask Mr. Mayor, what was the thinking behind investing in the business of the structure, a decision-making group, and so how did you decide that this would be something that would set you apart?

And then probably a question to Bruce as well; is this a story that, you know, can be replicated? Is this something that breaks the trend? Because you know already it talks about -- concentration on spreading around, and innovation being the reason why a gap between cities is opening up, you know, being bridged. So to what extent does this apply for the (inaudible). Thank you.

MR. BERKE: Well, the question was, why did we -- why did I decide to do this, why is this a push for us? So I think there's -- there's a really two reasons. One is, I want to thank Bruce and Brookings. I read the book and so I'm the best salesperson for the book. I go everywhere, hey, you know, here's why we are doing this, read the book.

So, I'm both a member of the club, and I guess an owner of the book, so this is -- this will really -- when I read the book though, what it actually did was it started to crystallize all the elements that were already happening in Chattanooga, and then put -- and make understand what we needed to do to take them to the next level. So as I said, we had this incredible asset, of fiber optics running through every single portion of our city.

We could see this economy growing, I felt everywhere that I went, there was another startup popping, and we didn't -- I don't want to see that die. In fact, what you can do is even talking about innovation districts, puts the forefront of the agenda, and that drives more discussion. If there's anything that makes you believe in the power

marketing, it's being a mayor.

MR. KATZ: Right, right, right.

MR. BERKE: You know, you can drive discussion in a city on really a very active level and so, being able to say, wait, look, the innovation economy is happening here, there is a way for our entire city to then wake up and go, yes it is. Now what's my role, how can I be part of it?

MR. KATZ: You know, so my answer to the question, really builds on what Kofi was saying before, I sort of see just endless possibilities for innovation in the United States, and frankly in many other economies, in part because of the real challenges, that our country and the world faces, and in part related to urbanization essentially being the unified -- unifying disruptive trend in the world today.

So, you know, when I look at what is possible now, I can see any number of cities that can basically declare, we are going to be a first mover on taking our city to no carbon. We are going to be a first mover on basically sustainable products and services around the scarcity of water.

I mean, just think about what the growing cities in China, in India, and Latin America, and Africa need, right, and if the United States, with our advance research institutions with capital that can be locked and deployed, with entrepreneurial culture, with a diverse population that can reach really all parts of the world, there's no end to what kind of innovation we can produce in companies with workers, and in cities. So, I don't really see this as zero sum, I just see this as endless potential.

Last week I was in Copenhagen, which basically has willed itself to be a no-carbon city, by 2025. What happens? A whole bunch of companies want to be there to experiment around, you know, let's do 100 percent plastic recycling. Let's be the place that cracks the code on big data and resilient growth.

So, I think we are at a period where, there really is limitless potential for small and medium-sized, and larger cities and metros, but then they collaborate to compete. And really, as Julie was describing, out of the Stockholm experience, or the Copenhagen experience, think about this Triple Helix of university corporations, public and civic sectors. Or maybe a Quadruple Helix, but that -- come together and crack the hard issues in the world.

I think there's a question right back there. Yeah?

MR. HERSHEY: I'm Bob Hershey. I'm a Consultant. To what extent are you able to use the internet to get together the projects and get economic consensus for what people want to do?

MR. BERKE: (off mic)

MR. KATZ: Again, how do you use the Internet to sort of, I guess, get consensus within the city for the projects?

MR. BERKE: Right. Well, specifically our gig -- the gig for us is really a mobilizing force. I want to talk about a couple things with that. Number one is, Bruce said a little bit about big data. EPB was getting about 3 million data points a year off of its grid when it -- before the gigabit system. Now it gets 17 million a day.

Now, think about what that does in terms of possibilities for entrepreneurship and innovation. This is -- we now have 17 million data hits a day, a few trillion a year, and that allows people who are interested in civic startups, to come in and figure out what can we do with energy and the possibilities of going to zero carbon.

It also allows for private enterprise to come in and figure out what can we do with data that will for better servicing of people, or changing the way that we build products or what's the utility of the future look like. All these things are happening, and what we need to do is come together as a city and bring this smart grid potential to its

greatest heights.

The second part is that, again, the gig is such a mobilizing force for us because we are at the front of this curve, and so people keep talking about we want Google Fiber. Well we have beyond Google Fiber, we have a gigabit per second service everywhere, two homes and businesses, and so we are able to use that and really pull people together in a way that motivates our economy.

MR. KATZ: We need a pipe from Chattanooga to Brookings, but that's a different question.

MS. BAER: Thanks. Sandra Baer, with the Smart Cities Council. We see this innovation all over the world, but I'm so curious about the mid-sized opportunity, and what are your collective favorite metrics for sort of seeing that this is successful? I mean, we are hearing them as you speak, but are there certain things that we should be advising cities to think about as they start this process? Thanks.

MR. KATZ: So it really goes back to what Nicole was saying. You know, we don't know how to measure, I think, and this is a Brookings admission, right. We don't know how to measure cities in a way, because cities are integrated. And the way we measure things in this country tends to be very compartmentalized, very specialized. Let's look housing; no, let's look at small business; no, let's look at patents; no, let's -- you know, so we've all become sort of specialists in a world that has gone urban, which means it's gone to the integrative whole.

Cities are really an asset class, right, taken together. And so I think what is happening in these districts and is happening with the urbanization of tech, and tech permeates everything so it's not like the urbanization of Silicon Valley, it's the urbanization of the broader tech super-sector, is a challenge as to how we measure things. And I think one of the most interesting parts of this initiative going forward is how

do we crack the code on a new set of metrics, you know, around economic progress, but then social inclusion, and ultimately, environmental system? I don't think we are there yet.

And, again, we have these very rigid kinds of ways at measuring jobs, and yet we are in convergence economy. So this is a message to everyone, in Think Tank (inaudible).

MR. BERKE: Well, I would just say that I guess I have a little bit different perspective. We are constantly trying to figure out what we are measuring, and we are putting up Chatta data soon which will have all these different -- you know, we talked about Dattanooga, but that seemed a little frivolous.

MR. KATZ: Dattanooga sounds like something you'd eat.

MR. BERKE: Yeah, that's right. But to me, I think for us, what we are -- what I'm constantly thinking about is, how do people conceive of their city? What do they think it's like, and how do we make that great mid-sized city, and that's the convergence, as Bruce says, about so many different factors. And I'm in a different situation because people tell me what they think all the time.

And what I see actually is, despite, of course a lot of concerns a lot issues, people feel momentum and progress. And for us, if we can continue to make people feel like we see a direction, we see where we are we are headed, and we are a part of the future, that's really important. Again, I think that everybody in the city, whether they are part of innovative economy, currently or not, understand that their kids need to be, and that their grand kids need to be, and if they don't think that we are providing that, accessibility for people in the future, then they know that we are headed back to that 1969 era.

MR. KATZ: One more question. Helen decides.

MS. LINDSTROM: My name is Pam Lindstrom. I'm a Housing Commissioner from Montgomery County. I wanted to argue with Ms. Wagner, is that right? About -- the one who studied the European cities, and I have also studied a couple of the European cities, in particular Vienna and several of Dutch cities on their housing programs; affordable housing being one of my chief interests in life.

And what struck me is first that she doesn't give them enough credit. Their housing programs are beyond anything that we have even dreamed of. And what struck me listening to the discussion today, is that they are -- in particular Vienna, Amsterdam, they apply this innovative intentional thinking to their housing sectors as well, in which the cities develop a vision, and they set out the parameters, they even find the locations.

And then the private sector responds, and the more that they ask of their housing developers, the more creative the housing developers get. So that, you know, they have housing developers who will do things that our very most progressive developers would be horrified, just because they are not challenged to do this.

I have to end with a question. All right, maybe this should be a question to the gentleman from JBG, as to, suppose they were challenged to provide, say, 60 percent social housing, and 40 percent market rate housing in a vibrant urban area; how would they come -- would they even consider trying to do it?

MR. KATZ: Or, Ben may want to answer that. Just one, I don't know how many folks, it was a *New York Times* or a *Wall Street Journal* article yesterday.

SPEAKER: *New York Times*.

MR. KATZ: *New York Times*, and it's was all about inclusionary zoning in New York City, and the tradeoffs that American cities are now beginning to make because we have the confluence of big, big forces, right. Demand for more rental

housing, aging of our population, which means we'd have a different mix of housing; the rise of cities, innovation districts being a part of them, and the complete and utter withdrawal of the national government, minor problem.

So, we are about to, I think, in the United States, and I think these are really -- is a great question, and a great set of examples from some of our European friends. We are about to go through a period where, city by city, we are going to have to fundamentally reinvent. How do we design, how do we finance, and how do we deliver housing for a much broader portion of our population; because we have been an unusual country where we've looked to Washington, D.C. and the Federal Government for subsidy in taxes that is mostly for the better off. Primary markets, secondary markets, et cetera, et cetera.

So this is about the biggest disruptive a period as we've experienced in the housing front in this country, and I think it's a great challenge that you've put forward to look beyond our borders. You know, to the Dutch or to the Austrians.

Would anyone else like to respond? And then, Mayor, you as always -- all elected officials always have the last word at Brookings, so.

MS. WAGNER: Hi. I'm back. So I think this is a great point, and it's an important point. This is really -- I mean, let just back up for one second because concepts of innovation districts, we in no way signed up talking about and advertising and promoting the sort of economic-aided community. This is not what this program, and what this initiative is about, right. This is about creating a comprehensive, live, work, that's affordable, with schools, and innovation that cuts across.

The thing though that I have found in the specific European cities that are moving in these discrete areas of innovation, is that frankly they haven't been thinking and having the same kinds of conversations that maybe you're finding in other ones, as a

whole, because there is a tremendous amount of innovation in the housing sector across Europe. Living in Europe I am consistently impressed with that.

What has been concerning to me, frankly, aside from 22@Barcelona, is that their strategies haven't been as comprehensive, is what I've been hearing, with the same kinds of conversations on innovation as here.

So is there an innovation district in the Netherlands? I don't know. But what I would like to do is to understand, if there is one, what is their housing strategy, and how does that fall into what they are doing at the national level?

So I think the bigger message here, really frankly, is that the inclusive piece has got to be woven into this whole concept of innovation district. This is what we've been talking about in terms of, when we write this paper, when you read the longer paper which is on the Web, we spend a significant amount of time talking about this piece, because if we forget this piece we will, in fact, get to the point where one person said, if we get to economic gated communities, then we've lost.

MR. KATZ: In some respects, Julie, what you're saying is that in many of the European countries, the platform for inclusive equitable growth is so strong, coming down from their national governments, that when we get to these small districts, geographies, it's not really the focus --

MS. WAGNER: The connections are so (inaudible) it's invisible. The city plans are so good --

MR. KATZ: Right.

MS. WAGNER: -- the individual districts, but doesn't need to do everything, like in (inaudible)--

MR. KATZ: That's a great point.

MS. WAGNER: -- what it needs to do here.

MR. KATZ: Ben?

MR. JACOBS: The housing I see in Hamburg are way, way, way, way, way, way better. In all their innovation districts everybody (inaudible) their conference city --

MR. KATZ: Conference city.

MR. JACOBS: Well a challenge has been put down. I'm Ben Jacobs, again. And I would have no problem in responding to your question, and responding to a dependable, predictable, overall program that would put everyone on the same footing. One of the difficulties, and I mentioned in my opening remarks, is predictability.

This area specifically, is multi-jurisdictional, whereas jurisdiction have greater and lesser predictability at any given season of the political calendar; so 60/40, not a problem; 80/20, not a problem, and now speaking 80 percent affordable.

It's just a question -- it's a finally a basic question of economics and who is going to bear the cost of underwriting some of the programs, that on their face, may not be economically viable at the outset. But a vibrant integrated community, retail, residential, commercial, all levels of income, is the most important element to maintain the vibrancy and the growth of any particular area. Thank you. Thanks for your question.

MR. KATZ: So, Mayor, last word, and since you're Mayor, about anything, but I mean -- but maybe about Chattanooga as well.

MR. BERKE: Well, what I would say is I think we live in an innovation century.

MR. KATZ: Yeah.

MR. BERKE: And, you know, when I go out, or I'd say we are the only home in the U.S. for Volkswagen manufacturing. Every place that I go, we have lots of suppliers, you see robotics, and you see people putting things into these robots, and then

most of the people who are employed there, actually support the robotics; and that's -- that will make an impression on you if you go to enough of these places.

And then the second trend that you see, which I ask all of them, from having reading the book is, have you started to co-locate your research alongside the manufacturing? And almost universally, they say, you know, we just moved a couple people here last week. And so this is -- being able to go out and see Chattanooga businesses every day and make that part of my normal course of life that really accelerates the way that you think about the innovation world.

Anything that can be done by a robot or a computer in the future will be done by a robot or a computer, and so what we have to add is creativity and thought and ideas. For Chattanooga -- I'm going to say it again -- we are a mid-sized Southern City. Our future is based on being the place that figures out how mid-sized southern cities, tap into the innovation century in the role that we play, and I think we are on our way.

MR. KATZ: So, that was a perfect ending. Thank you, everyone, for coming. Thanks for folks who watch the webcast. It's an innovation century, it's an urban century, you put the two together you get innovation districts, the true convergence economy.

Thank you for coming. (Applause)

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