6

THE RISE OF INNOVATION DISTRICTS

People gathered in concentrations of city size and density can be considered a positive good . . . because they are the source of immense vitality, and because they do represent, in small geographic compass, a great and exuberant richness of differences and possibilities, many of these differences unique and unpredictable and all the more valuable because they are.

—JANE JACOBS, *The Death and Life of Great American Cities*

The American metropolitan revolution, although nascent and evolving, is already inventing new models of economic development (as seen in the Applied Sciences initiative), new approaches to social integration (Neighborhood Centers), and new levels of collaboration (as in Northeast Ohio and Denver). Earlier chapters focused on the revolution as is: how city and metropolitan networks are stepping up in the absence of federal leadership to grapple with the big challenges before the country. This chapter and the next focus on the revolution to be: how megatrends will drive cities and metros to reshape their physical and social landscape within as well as forge new connections with their trading partners abroad.

As the next decade unfolds, profound economic, demographic, and cultural shifts are likely to alter radically the place preferences of firms and people and, in the process, to reconceive the very link between economy shaping and place making.

science parks, the exalting of closed innovation systems where ideas were guarded and secrecy was prized.

Innovation districts reflect a new vision of where innovative firms want to locate, where creative and talented workers want to live and work, and how ideas happen. They embody a different vision from that of industrial districts or science parks of both the physical realm (infrastructure, historic buildings, waterfront locations, urban design, and architecture) and the community environment (affordable housing, social activity, cultural institutions and events). They respect the growing penchant for companies in leading-edge sectors to practice open innovation and collaborate with networks of firms, universities, and supporting institutions. They provide the physical and social platform for entrepreneurial growth—incubator space, collaborative venues, social networking, product competitions, technical support, and mentoring. They build on the recent expansion of state-of-the-art transit systems in the United States beyond their original footprint in the Northeast, the mid-Atlantic, and Chicago. Innovation districts cast cities and urban suburbia not just as consumer zones of Starbucks and stadiums, restaurants and retail but also as hubs of invention, collaboration, and entrepreneurialism that drive the broader economy. They are both competitive places (respecting the dramatic impact that innovative, traded sectors have on broader metropolitan economies) and cool spaces (reflecting the revaluation of livability, walkability, and authenticity in neighborhood design).

The rise of innovation districts reflects not only a paradigmatic shift in development patterns but also the manner in which development is delivered. In some cases, one entity is driving redevelopment: the local government, a real estate developer, the manager of the research park. There is a guiding hand, perhaps even a master plan. In other cases, such as Detroit, a passionate network of visionary and stubborn CEOs of companies, universities, hospitals, philanthropies, and nonprofit organizations is catalyzing the market. This is organic place making as jigsaw puzzle, assembled through the simultaneous and iterative actions of dozens of players. In all cases, however, innovation districts are being driven from the ground up, primarily through the actions of local actors. There is no federal or state program or multinational corporation stamping out innovation districts across the country. Rather, the federal and state governments are followers, serving rather than setting the vision of renewal.

MAKING SENSE OF INNOVATION DISTRICTS

Innovation districts represent the physical imprint of profound economic and demographic forces. Chapter 2 described the flow of ideas and the accumulation of knowledge in clusters that fuels New York City's Applied Sciences project. Chapter 4's analysis of economic revival in Northeast Ohio showed the power of networks of innovators to spark more innovation by working in close collaboration and close proximity across a broad spectrum of companies, universities, intermediaries, and other supportive institutions. In key research- and technology-driven sectors of the economy, the confluence of these trends has enormous consequences for the physical location and environment of work.

We have known intuitively for some time that certain creative sectors of the economy place a high value on urban-level density and proximity. Would popular music have had the same transformative impact on our culture without the close-in, collaboration-inducing quarters of Tin Pan Alley or the Brill Building? Would popular advertising be the same without the tightly bound Madison Avenue "Mad Men" cluster of advertising agencies in New York City?[5]

With the rise of open innovation and networked research and idea generation, the imperative to collaborate has expanded to a broader group of knowledge-intensive sectors, including such science- and technology-heavy fields as chemicals, biotechnology, telecommunications, and semiconductors.[6] McKinsey & Company, for example, has noticed a move from internal R&D labs to new "multichannel R&D models," which involve partnerships with "academic centers, partners, competitors, customers, venture-capital funds, and startups."[7] No one company can master all the knowledge it needs, so companies rely on a network of industry collaborators. They must collaborate to compete.

The hunger for knowledge and the imperative to collaborate has spatial implications. Partners want to be near partners for the simple reason that proximity enables constant interaction and knowledge sharing. A study by the British government captures this well: "While the marginal cost of transmitting information across geographical space has fallen significantly, the marginal cost of transmitting knowledge still rises with distance. . . . Therefore, the knowledge spillover benefits of clustering in cities can be large for high-value, knowledge intensive sectors."[8]

Innovation districts capitalize on this difference between information and knowledge. Information is rote, impersonal, a commodity, undifferentiated, one size fits all. Knowledge is subtle, contextual, specific, and is shared between persons. If all we needed was information, we would never leave home; we could all telecommute to work. But firms and workers need knowledge to create and compete, and knowledge is learned, gained through experience, not easily replicable, and enhanced by proximity.

The proximity effect can be staggering: Gerry Carlino has found that the number of patents per capita increases, on average, by 20 to 30 percent for every doubling of employment density, with the greatest increases expected within the most densely populated portions of a metropolitan area.[9] Stuart Rosenthal and William Strange find that the intellectual spillovers that drive innovation and employment drop off dramatically as firms and people move more than a mile apart.[10] At a distance of just over a mile, the power of intellectual ferment to create another new firm or even another new job drops to one-tenth or less of what it is closer in. As Rosenthal and Strange write, "Information spillovers that require frequent contact between workers may dissipate over a short distance as walking to a meeting place becomes difficult or as random encounters become rare."[11] Researchers at Harvard Medical School have found that even working in the same building on an academic medical campus makes a difference for scientific breakthroughs. As one of them explains, "Otherwise it's really out of sight, out of mind."[12]

An economy driven by knowledge bestows new importance on institutions of knowledge such as universities, medical research centers, private research institutions, and innovation institutes. These institutions tend to be disproportionately located in cities and other urban places. More than 1,900 colleges and universities, more than half the nation's total, are located in the urban core of metropolitan areas.[13] Urban universities obviously contribute substantially to local economies through their employment and expenditures on local goods and services. For our purposes, what matters is that urban universities account for roughly 74 percent (about $27 billion in 2006–07) of all research expenditures at U.S. research universities.[14] Brookings has also found a high correlation between the nation's leading biotech clusters and the strength (as judged by, for example, medical research capacity, National Institutes of Health grants, number of PhDs) of local universities.[15]

The technology- and knowledge-driven sectors' renewed emphasis on density is a far cry from the closed innovation spaces of the previous century, isolated labs, and research parks, such as General Electric's Global Research Center in Niskayuna, New York, and Bell Labs in Murray Hill, New Jersey.[16] As the economy evolves and 3-D printing and other disruptive technology enables small-scale manufacturing, the concentration may even extend to the important interplay of innovation and production. It is revealing that the first National Manufacturing Innovation Institute, described briefly in chapter 4, focused on additive manufacturing, is located in the downtown of Youngstown, Ohio, close to the existing base of small and medium-size manufacturing firms. The midtown Detroit location of the watch- and bicycle-making firm Shinola, described later in this chapter, is further evidence of this trend. In many respects, the rise of innovation districts embodies the very essence of cities: an aggregation of talented, driven people, assembled in close quarters, who exchange ideas and knowledge in what the urban historian Sir Peter Hall calls "a dynamic process of innovation, imitation and improvement."[17]

Beyond physical location, innovation districts embrace the broader trends in work that are driving the redesign of buildings and office spaces in support of collaboration and open innovation. The early, highly recognizable model for networked workplaces is the newspaper newsroom, but these principles have been implemented in places ranging from Michael Bloomberg's bullpen in New York's city hall to the campuses of Silicon Valley technology firms. Facebook and Google, for example, have embraced "hackable buildings," in the words of Randy Howder, a workplace strategist at the design and architecture firm Gensler, who led the design of Facebook's recent Menlo Park, California, offices. These offices have open floor plans that can be easily reconfigured to create dense, collaborative spaces for new teams and projects.[18]

The line between private and public spaces is now blurred. When Zappos, the online retail giant that grew to scale in suburban Las Vegas, was looking for new headquarters in 2010, the company's CEO Tony Hsieh decided to create a denser workplace to increase interaction and collaboration. For Hsieh, that meant not only providing open floor plans and amenities within the office but also embedding the new headquarters (and 2,000 Zappos workers) downtown, in Las Vegas's Fremont East neighborhood in the city's old city hall. Hsieh is pairing the move with

a new private investment fund (separate from Zappos) called the Downtown Project to build a dense, multiuse and walkable environment; the strategies include luring new start-ups close to the headquarters and creating more housing and co-working spaces in the district. "The idea," said Hsieh said in an interview with *Fortune* magazine, "went from 'let's build a campus' to 'let's build a city.'"[19]

DEMOGRAPHICS ARE DESTINY

Innovation districts are the product of another transformative trend: Americans' changing family structure and the shift to smaller and more numerous households. Over the past century, the average size of a household declined from 4.60 persons in 1900 to 3.38 in 1950 to 2.58 in 2010.[20] Part of this change is attributable to the aging of our population. Yet younger women and men are also delaying marriage and having fewer children. In fact, the share of adults between the ages of eighteen and twenty-nine who are married fell from 59 percent in 1960 to 20 percent in 2010, and there was nearly a six-year rise in the median age at first marriage for both men and women during this period, according to the Pew Research Center.[21] As a result, the prototypical family of the suburban era, a married couple with school-age children, now represents 20.0 percent of American households, down from 23.5 percent in 2000 and 40.3 percent in 1970.[22] The move to smaller households will only intensify in coming decades.[23]

This demographic tumult is already changing preferences and behavior, in large and small ways. Quality of life is increasingly understood by young people, particularly those who have delayed childrearing, to mean proximity to restaurants, retail, cultural and education institutions, and other urban amenities.[24] They want a vibrant street life, historic neighborhoods, and public transit. In fact, between 2000 and 2009, the share of college-educated twenty-five- to thirty-four-year-olds living within three miles of the central business district in the nation's fifty-one largest metropolitan areas increased by 26 percent, double the growth rate of college-educated young adults in the rest of the metropolitan area.[25]

Given these trends it is understandable that the United States is experiencing its largest sustained drop in driving, especially among young people. In 1983 nearly half of young Americans had a driver's license; today, only 29 percent do.[26] As Chris Nelson writes in his provocative

new book *Reshaping Metropolitan America: Development Trends and Opportunities to 2030,* "When people live within a mile of work, nearly 40 percent walked or biked to work in 2009—up from 25 percent as recently as 1995," and the statistics for running errands are nearly identical.[27] Meanwhile, public transit use increased by 32.3 percent between 1995 and 2011, while the total population growth rate during that time was only half that amount.[28] We are witnessing a virtuous cycle of worker preference and firm demand. Young talented individuals and firms in a growing number of sectors are simultaneously, for distinct but reinforcing reasons, embracing those very attributes of urbanism—what Saskia Sassen calls "cityness"—that were denigrated and often destroyed in the twentieth century:[29] complexity; density; diversity of people and cultures; the convergence of the physical environment at multiple scales; the messy intersection of activities; a variance of distinctive designs; the layering of the old and the new; an integration rather than segregation of uses and activities. If this trend continues, we could be on the verge of a profound, structural shift in the physical landscape of work and living.

INNOVATION DISTRICTS FROM THE GROUND UP

The best evidence for the spatial impacts of economic restructuring, new innovation patterns, and demographic transformation are found not in academic treatises but on the ground. Like differentiated metro economies, distinct types of innovation districts are emerging in cities and metros throughout the county. Some are clustered around powerful advanced research institutions and clusters of technology firms. Others are transforming underused areas of the city, particularly older industrial areas. Still others are remaking isolated, low-density science parks at the periphery of the metropolis.

The power of anchor institutions is best illustrated by the Massachusetts Institute of Technology in Cambridge, Massachusetts. In the mid-twentieth century, MIT was surrounded by acres of abandoned industrial properties and buildings. The university first became actively involved in making the area a high-tech region in the 1960s, when, according to its news office, "MIT and the real estate firm Cabot Cabot and Forbes responded to the request of Mayor Edward A. Crane and used private money to convert a former soap factory into Technology Square, one of Cambridge's first large-scale real estate developments."[30]

Simultaneously, nearby Kendall Square, on the eastern edge of MIT's campus, began to be redeveloped as biotech and info-tech start-ups emerged out of MIT and nearby Harvard. As *The Economist* describes it, "In the 1960s, the entrepreneurialism of the Massachusetts Institute of Technology turned Cambridge, Massachusetts, into a mecca for high-tech startups."[31]

Yet redevelopment at scale in creating a mixed-use district around the university did not begin until the 1980s, when the Forest City Science and Technology Group (a division of the national real estate development firm Forest City Enterprises), in collaboration with MIT and the city of Cambridge, started developing a mixed-use district, University Park at MIT, on a twenty-seven-acre plot in a former blighted industrial area owned by the university and adjacent to the northwest edge of campus. The initial redevelopment involved numerous rezoning fights and required a fundamental rethinking of the community's landscape. A 2005 article in the *Boston Globe* reports that "in 1983 . . . a city master plan for the site established zoning with height and density limits. It called for new utilities, roads, limited traffic, 100,000 square feet of retail space, and rental housing, with 25 percent of the units rented to low and moderate-income tenants. . . . The plan also set design guidelines that MIT and Forest City agreed to follow."[32]

Fast-forward thirty years, and the MIT bio engines continue to hum. University Park now houses more than 1.5 million square feet of scientific research facilities across ten buildings, and it is home to major bioscience firms like Alkermes, Partners HealthCare System, and Millennium Pharmaceuticals. It has 674 residential units, a hotel, a conference center, and an expanding number of retail amenities.[33]

The concentration of biotech and information technology firms and research around MIT now stretches from Central Square, northwest of the campus (close to where University Park at MIT is located), east along Main Street to Kendall Square. This corridor has been described by the Kendall Square Association as "the densest square mile of innovation on the planet."[34]

In the past several years, major biotechnology and pharmaceutical companies (for example, Pfizer and Novartis) as well as tech companies (for example, Google, Microsoft, IBM, and Nokia) have staked their ground in Cambridge with new facilities and expanded operations.[35] This private activity was drawn to the area by the presence of new, world-class research institutes and proximity to the Longwood Medical Area

and Mass General. The new penchant for open innovation and proximity is best captured by the story of Biogen Idec, which describes itself on its website as "the oldest independent biotech firm in the world." In 2010 Biogen completed an enormous campus at the intersection of Route 128 and Route 20, in the suburb of Weston, while maintaining a research facility in Cambridge. Barely a year later, under new leadership, the company started the difficult process of abandoning the new Weston facility and moving the entire company back to Cambridge. As the *New York Times* reported in early 2013,

> Pharmaceutical companies traditionally preferred suburban enclaves where they could protect their intellectual property in more secluded settings and meet their employees' needs. But in recent years, as the costs of drug development have soared and R&D pipelines slowed, pharmaceutical companies have looked elsewhere for innovation. Much of that novelty is now coming from biotechnology firms and major research universities like M.I.T. and Harvard, just two subway stops away.[36]

The Kendall Square area is now an enticing place to live and work. Since 2005 nearly 1,000 new housing units have been built, as well as many new restaurants and other retail outlets.[37] As a result, "office space is hard to come by, rents are rising, and it boasts a roster of marquee companies, from Microsoft Corp. to Google Inc. to Biogen Idec that are expanding there."[38]

Other private construction projects, totaling $1 billion, are under way.[39] For its part, MIT has only just started to become actively involved in making this a more mixed-use area. In 2011, nearly thirty years after the University Park rezoning, MIT launched the Kendall Square Initiative, an effort to rezone twenty-six acres and invest $700 million in upgrading and developing eight buildings it owns.[40] The plan calls for, among other things, 1 million square feet of new office space and 240,000 square feet of new housing.[41] After a year of revising the plans, MIT now awaits final approval from the Cambridge city council.

Another innovation district model is being tested on the South Boston waterfront, barely 3.5 miles from Kendall Square. There, the city of Boston is trying to build an innovation district in a former industrial area of 1,000 acres that lacks the strong, driving engine of a world-class research institution like MIT or even, at the beginning of the effort, a robust cluster

of entrepreneurial firms. What it does have is close proximity and easy transit access to a city with strong assets—renowned universities, high-level human capital, and a growing concentration of life sciences and tech clusters. This is an innovation district conceived with the supreme confidence that, as Boston mayor Thomas Menino said in 2010, "there has never been a better time for innovation to occur in urban settings than now, and there should be no better place than Boston."[42] As expressed in an initial manifesto titled "The Strategy and Core Principles,"

> Ideas need a tight ecosystem to foster creative growth—distance equals death. The ability for small firms to generate ideas and intermingle with larger firms who have the access to capital and the ability to scale and grow those ideas is imperative in entrepreneurial fields. The tight location clustering leads to job creation as well as more efficient productive and service design. These innovation district clusters become the new economic engines for the region, retaining homegrown talent from the surrounding city and intellectual institutions.[43]

Since January 2010, the city of Boston has implemented a three-prong strategy to transform the waterfront into a thriving center of innovation. First, it has provided public infrastructure and networking opportunities to foster an "innovation ecosystem." The city secured, for example, a vacant, premier office space free of charge for a number of years to lure MassChallenge to the innovation district.[44] MassChallenge is best known for its global competition for entrepreneurship and start-ups. For the winners, the nonprofit runs a three-month accelerator program, which includes on-site mentorships. In its first round in 2010, with 111 companies participating, the effort raised more than $90 million dollars and created 500 jobs.[45] With the help of city leadership and through private funding, a $5.5 million, 12,000 square-foot Innovation Center has been built to provide incubator space outfitted with the latest technology, where new firms can exchange ideas and grow.[46] The district has become a hub for innovation on sustainability. The Fraunhofer Center for Sustainable Energy, a U.S. subsidiary of the German research institution, and GreenTown Labs both have a presence in the district and are dedicating a portion of their facilities to incubate clean-tech companies.

Second, the city has encouraged a range of flexible housing options that would appeal to a unique class of workers, thinkers, and others that

are drawn to the area. The Boston Redevelopment Authority, for example, is testing market acceptance of micro apartment units that exist in housing developments with shared amenities and public spaces. Private space is limited to 300 square feet, and the public spaces offer shared work space, large entertainment spaces, and larger kitchens and eating areas.[47] The concept draws from well-known executive learning facilities at Harvard University and Babson College, where similar living spaces were found to stimulate conversations and, ultimately, new collaborations. As a result of negotiations between the city and developers, 15 percent of residential projects, often an entire floor of a building, are dedicated to this type of housing.[48]

The final focus is on attracting clusters of innovative workers. Boston's innovation district offers a distinct approach to clusters, taking an industry-neutral approach but focusing on fast-growing, innovation-driven industries. Boston designed its effort to be "cluster agnostic," explained Mitch Weiss, the mayor's chief of staff, arguing that the best, most productive course is to create the right environment for fast-growing industries and then let them naturally aggregate.[49] A Boston Redevelopment Authority representative explained that the purposefully flexible approach is about "pioneering and re-evolving."[50] Although some companies have overlapping, if not complementary interests, in some cases one field is branching into new, innovative directions as a result of its relationships with companies in other sectors. One example was a clean-energy company working with a microbrewery on developing new energy technologies for the microbrewery.[51]

The initial results of this activity are impressive. As of March 2013, more than 200 new businesses and 4,000 new jobs have been created on the site.[52] New companies fall within the clusters of life sciences and biotech, green or clean tech, architecture and digital design, communications and new media, financial, legal, and a broad category of technology development, which includes manufacturing.[53] Wellesley-based Babson College, the country's highest-ranked college for entrepreneurship, is providing "hatchery space" in the district for Babson start-ups founded by students in its MBA program as well as opening a satellite facility to offer business courses for full-time and evening students.[54] Battery Ventures, one of Boston's oldest venture capital firms, is also becoming part of the new district.[55]

But the psychological impact may be the strongest and longest lasting. The identity and image of a key part of the city have essentially been

redefined, and, in the process, its hidden value has been uncovered; and as a result, economic potential and power have been unleashed at a level that was heretofore unexpected and unimagined. This is a true transformative intervention, creating markets in places where markets either did not exist or were only partially realized. As one local observer concludes, "Just a few years ago, the South Boston Waterfront didn't have much to it. Fast forward to 2012 and the area is exploding with activity in what's now known as Boston's innovation district—one of Boston's hottest neighborhoods."[56]

Ironically, the strongest validation for twenty-first-century innovation districts is emerging in North Carolina's Research Triangle Park, perhaps the twentieth century's most iconic high-tech research and development park. The brainchild of visionary business and political leaders in the 1950s, it is widely credited with helping North Carolina transform itself from a low-wage economy dependent on "jobs in the agriculture, forestry and furniture and textile industries."[57] The park grew out of a pine forest strategically located in the triangle between three major universities (Duke University in Durham, North Carolina State University in Raleigh, and the University of North Carolina at Chapel Hill). The complex currently boasts 7,000 acres, 22.5 million square feet of space, 170 companies, and around 40,000 workers, but there are only minimal amenities, and no residential housing, within the park's boundaries.[58] From the park's very origins, its zoning laws helped shape a landscape of isolated corporate campuses sharing little but internal roads and easy access to the Raleigh Durham International Airport and I-40, the major interstate connecting Raleigh and Durham. The park rules insist that buildings cover no more than 15 to 30 percent of a company's total land area, encouraging an expansive parklike setting for corporate tenants and discouraging dense, mixed-use development.[59]

The Research Triangle Foundation began to reconsider its design in response to the development of the downtowns of Raleigh, Durham, and Chapel Hill in the past fifteen years. In November 2012, after several years of review and outreach, it announced a new fifty-year master plan to urbanize the quintessential exurban science park, recognizing that it is no longer the optimal environment to spur innovation and satisfy its younger workforce. The master plan particularly calls for more density and amenities, including the creation of a vibrant central district, more retail, the building of up to 1,400 multifamily housing units at

the Triangle Commons area, and the possible construction of a light-rail transit line to connect the park with the larger Raleigh-Durham region, as well as a stronger university presence throughout the park.[60] As Lydia DePillis notes in a piece titled "Dinosaur Makeover," "The current generation of tech workers doesn't want to toil in the soulless *Office Space* complexes surrounded by moats of parking that dot Research Triangle Park's sprawling vastness."[61]

These examples are not isolated. The "anchor plus" model illustrated by University Park at MIT can be found, to a lesser degree, in San Diego (building from the rich base of Scripps Research Institute, Salk Institute for Biomedical Studies, Burnham Institute, and the University of California at San Diego), St. Louis (in the burgeoning life sciences district around Washington University, St. Louis University, the University of Missouri at St. Louis, and Barnes Jewish Hospital) or in Pittsburgh (around the constellation of Carnegie Mellon University, the University of Pittsburgh, and the University of Pittsburgh Medical Center). University Park at MIT is now a model for other Forest City developments including the Science and Technology Park at Johns Hopkins, the Translational Research Lab at the University of Pennsylvania, and the Colorado Science and Technology Park adjacent to the Fitzsimons Life Science District in Aurora, Colorado.

The Cambridge Innovation Center, a technology and life sciences business incubator that has helped launch more than 1,200 companies near MIT since 1999, recently announced that it will expand its operations and start-up support services to Baltimore and St. Louis.[62] The "transform underused areas" model exemplified by Boston can be found in the remarkable development of Seattle's South Lake Union area in the past decade, led by Paul Allen's Vulcan Real Estate and Lennar Urban's ambitious plans for Hunters Point in San Francisco (an expansive former naval facility closed in the 1970s). And the "remake science park" model is sparking serious discussions about redesign in suburban and exurban enclaves as disparate as Route 128 outside Boston, the Dulles corridor outside Washington, D.C., and even Silicon Valley itself. As *Businessweek* observes, "The trend is to nurture living, breathing communities rather than sterile, remote compounds of research silos."[63]

Innovation districts, of course, are not confined to American shores. Many of the U.S. models actually draw from the experiences of 22@Barcelona, the first self-proclaimed innovation district. In less than a decade, 4,500 firms have located in the area, thousands of housing units have been

built, and linkages to more than ten universities, twelve R&D technology clusters, and new spaces for start-ups have been created in a highly integrated system of innovation-driven development. As our colleague Julie Wagner has illustrated, the secrets to Barcelona's success are threefold.[64]

First, through extensive public investment and strong, focused public planning, Barcelona has transformed a 494-acre industrial area scarred and separated from the rest of the city by nineteenth-century railroad tracks into a twenty-first-century urban community. To some extent, this was achieved by European-level public funding (more than 180 million euros) to bury train tracks and build a public tram and new energy and telecommunications services. But innovative market mechanisms were used to generate private revenue. After developing a new area plan, the city changed area zoning from industrial (22a) to services (22@) and increased allowable density. Thirty percent of the total land area was transferred to the city: 10 percent was used for affordable housing, 10 percent for open spaces and green spaces, and 10 percent for knowledge-based activities (such as R&D centers or incubators). Property owners were also required to pay funds per square meter of land subsequently developed, and the money was used to build infrastructure and housing.[65] Throughout the area, significant attention was given to the blending of historic and modern architecture and design. The factory of José Canela, for example, which was built between 1898 and 1914, is now a visual focal point and home to the University of Barcelona's Institute of Lifelong Learning.[66]

Second, the transformation of the physical space was paired with efforts to create a new knowledge and innovation hub. After cataloguing the inherent strengths and geographic advantages of the city, 22@Barcelona ultimately settled on five economic clusters to pursue: media, medical technologies, information and communications technology, energy, and design. The city then categorized typologies of cluster magnets—the kinds of anchor institutions and organizations necessary to create gravitational pull, including universities, institutions, companies, meeting and residential spaces for specific industries, a technology center (which would be the driver behind the entire cluster strategy), incubators, and residences for students and workers.[67] Intensive efforts to lure these magnets paid off, as each cluster now has a complete portfolio of these seven magnet typologies. Through investments in districtwide social networking and web updates, firms are apprised of advances in the district that might stimulate new concepts across sectors.

Finally, the district has benefited immensely from its close proximity to Barcelona Activa, considered one of the best entrepreneurial development programs in the world. Among other things, the program offers modules designed for specific economic clusters, such as coaching services for the "bio-entrepreneur," the creative media industry, and even artisans. Activa's 2010 statistics best illustrate their level of impact: 83 percent of all businesses formed survived after the fourth year; 70 percent of coached projects ultimately transformed into a company; and 1,700 companies and 3,200 jobs were created.[68] Barcelona Activa and the 22@Barcelona district leadership meet regularly to find synergies between their activities and efforts.[69]

Innovation districts, whether in the United States, Europe, or elsewhere, are not cookie-cutter models that are easy to replicate. The geography of innovation, unlike the geography of consumption, conforms to the distinctive economic and physical starting points of disparate places. But common lessons cut across these examples, most notably that the new desire for collaboration and integration is coming into direct conflict with conventional norms of specialization and separation.

The challenges to delivering innovation districts at scale are many. Each kind of innovation district, for example, requires a fundamental rethinking of traditional land use and zoning conventions. In the midst of massive economic global change, twenty-first-century metropolitan areas still bear the indelible markings of the twentieth century.[70] In the early twentieth century, for example, government bodies enacted zoning regulations to establish new rules for urban development. Although originally intended to protect access to light and air from immense overbuilding, later versions of zoning added the segregation of uses—isolating housing, office, commercial, and manufacturing activities from one another.[71] The design of a science and research park, as exemplified by North Carolina's Research Triangle Park, was intended to ensure seclusion, isolation, and the protection of intellectual property, often on "research estates," as the North Carolina park's master plan puts it.[72] Thus innovation districts require, at a minimum, variances from the rigid, antiquated rules that still define the urban and suburban landscape.[73] That is essentially what is happening in the Kendall Square area around MIT's campus. In many cases, the new vision of successful districts has become the tool to overhaul outdated and outmoded frameworks and transform exceptions into new guidelines. This is what happened in Barcelona in a very purposeful

fashion and what is under way in the Boston innovation district and the Research Triangle Park.

Beyond zoning and land use, innovation districts require integrative thinking and action, seeing and making connections between economic dynamics and urban experiences (for example, transportation, housing, economic activity, education, and recreation), which are inextricably linked in reality but separated in practice. In Barcelona (and, to some extent, exurban Research Triangle Park), this is occurring in a highly structured and planned manner, with particular focus on targeting specific clusters and urbanizing the physical environment. The MIT and Boston innovation district cases, by contrast, appear to be occurring in a more organic way, in which planning acts more as platform than as prescription. As the Barcelona case illustrates, true integrative thinking often involves an empirically grounded vision at the building-block level. Although a unified vision is not a prerequisite to realizing innovation districts, cities and metro areas that proceed without one have a higher probability of making the wrong physical bets, siting them in the wrong places, or ultimately creating a physical landscape that fails to add up to "cityness." It is easy to find such examples around the country, such as isolated megaprojects (a new stadium or convention center) or waterfront revitalization efforts that constructed the wrong projects, having misunderstood the market and the diversifying demographic.[74]

The quest for integration is also present in financing. Innovation districts require juggling multiple, compartmentalized public, private, and civic financing sources. In some respects, that is a natural product of the breadth of discrete and separate activities that take place within the districts. Start-up firms seek venture capital. Housing developers look for financing from banks, tax equity investors, and government. Small businesses want federal small-business loans. Universities and hospitals raise private capital from their balance sheets. Entrepreneurial networks, incubator spaces, cultural venues, and local intermediaries often receive philanthropic or member funding. And governments at all levels make investments in place-based infrastructure (particularly the remediation of brownfields), advanced research and development, skills training programs, and so forth. In addition, achieving social objectives often requires that innovative tax and shared equity approaches be built into particular transactions, so that appreciations in property value can serve higher community purposes (for example, creating affordable housing).

Creating an innovation district, therefore, is not like building an exurban subdivision of single-family houses or a commercial strip mall. Those developments are delivered, for the most part, by standardized and routinized financing vehicles that enable the production of similar products at high volume and low cost. Innovation districts, by contrast, require the layering of multiple sources of financing, placing stress on project design and implementation. As with land use and zoning, the evolution from exceptional transactions to routinized forms of investments is required to ensure that innovation districts become the rule rather than the exception. We return to this challenge later in the chapter.

AN INNOVATION DISTRICT IN THE UNLIKELIEST OF PLACES

Perhaps the most intriguing example of a burgeoning innovation district is in the city of Detroit. In the face of population loss, fiscal collapse, racial division, political dysfunction, and near anarchic conditions, a vanguard of corporate, university, and civic leaders are taking charge and building the city back, from its origins along the Detroit River and around its anchor institutions. Unlike the Barcelona district, there is no unified master plan here. Unlike the London Olympic Park, national government has limited presence. Rather, in Detroit we see the power of networks to crowd source and crowd fund a city and, in the process, transform a metropolis.

The realities of present-day Detroit are grim and well rehearsed. The city has been in free fall for decades. The city population declined 25 percent in the last decade alone and 60 percent since 1950, and, with fewer than 714,000 inhabitants, it is now at its lowest level since 1910. Against such hemorrhaging, the city's sheer size of 139 square miles (Manhattan, San Francisco, and Boston could all fit within Detroit, with 20 square miles to spare) is a daily reminder of past grandeur and failed ambitions. The city resembles a man who has experienced extreme weight loss but is still wearing his old clothes. It has become a land of empty places and ungoverned spaces.

In January 2013 the Detroit Works Project Team, composed of leaders from across the city's public, private, nonprofit, and philanthropic sectors who were appointed by Detroit mayor Dave Bing, released the Detroit Future City report as the culmination of a multiyear effort to provide a new blueprint for the city's resurgence. The report documents the

enormous human, physical, and fiscal costs that result when residents flee, jobs disperse, and a city becomes too big for itself:

—Of Detroit's 349,170 total housing units, 79,725 are currently vacant. Roughly twenty square miles of the city's occupiable land area is vacant, including 36 percent of Detroit's commercial land. There are seventy-two Superfund contaminated sites within the city limits.

—Only 35,000 of Detroit's 88,000 street lights work. Of the city's 3,000 miles of road, 27 percent are deemed to be in poor shape.

—The city's water system is only capable of operating at 40 percent of its maximum capacity. As many as 42 billion gallons of water a year are unaccounted for owing to leaks and meter inaccuracies.

—The highest level of education for 82 percent of Detroit's residents is a high school diploma or less. Just 32 percent of those without a high school diploma are employed.

—Detroit ranks second highest among U.S. cities with more than 100,000 people for its rate of violent crime.[75]

—With job decentralization the worst in the nation (over 77 percent of jobs are located more than ten miles from the downtown),[76] 61 percent of Detroiters who have jobs work outside the city limits. Of the jobs within the city, Detroit residents hold just 30 percent.[77]

As Detroit's population declined, its finances worsened. In 2011 Michigan governor Rick Snyder appointed a financial review team to assess the city's financial position and outlook. The team's most recent report in February 2013 reveals a city starved for revenue and addicted to debt, facing a double whammy of short-term cash-flow problems and long-term debt liabilities that exceed $14 billion.[78] On March 14, 2013, Governor Snyder appointed Kevyn Orr, a well-respected Washington, D.C., bankruptcy lawyer, as Detroit's emergency financial manager.[79]

The Detroit that the world knows is what historian Tom Sugrue describes as an "eerily apocalyptic" landscape of boarded-up shops, empty lots, burned-out buildings, roaming packs of dogs, and oddly pristine prairie land.[80] What gets passed over in this harsh portrait is the recovery in the downtown and midtown areas of the city, which, along with the Eastern Market district and the riverfront, make up about 5.2 square miles—3.7 percent and 0.13 percent of the city's and metro's land masses, respectively.[81] It is in this relative dot of a place that a world-class innovation district is slowly emerging, erected through a collaborative network

of local leaders, amplified by a pervasive sense of do-it-yourself urbanism. What follows is just a small glimpse of what is happening.

The downtown is being transformed by an idiosyncratic urban evangelist, Dan Gilbert, who happens to be the founder of the mortgage lending firm Quicken Loans and the owner of the National Basketball Association's Cleveland Cavaliers. In 2007 Gilbert moved his firm's headquarters from suburban Farmington Hills to downtown Detroit. Since then, he has brought more than 7,000 employees downtown and purchased more than fifteen buildings and two parking garages in the downtown area.[82] The firm is now the third-largest landholder in the city of Detroit, behind the city government and General Motors.[83] Gilbert's purchases and building plans are all part of his Detroit 2.0 revival vision, "a lively live-work-play district in the heart of the city based around entrepreneurial companies in the digital economy."[84]

Gilbert's acquisitions, of course, built on existing assets: the downtown is a National Register Historic District, and more than fifty buildings are in the National Register of Historic Places.[85] The Kresge Foundation contributed $50 million toward a major public-private reclamation and redevelopment project along the city's riverfront, and public resources helped pay for a portion of the construction and landscaping of two new stadiums—Ford Field and Comerica Park. Several smart private and nonprofit intermediaries—Invest Detroit, the Detroit Downtown Partnership, the Detroit Economic Growth Corporation—have nurtured these deals and the broader revival for years.

But Gilbert's confidence has sparked decisions by other firms, large and small, to expand their downtown presence. Blue Cross Blue Shield of Michigan has moved 3,400 workers from the suburbs; now 6,400 of its employees work in five downtown buildings, with a large share of them at the Renaissance Center complex along the riverfront.[86] Compuware and DTE Energy have had a strong presence downtown. (In fact, Compuware arguably started the downtown trend by building a fifteen-story headquarters in downtown Detroit in 2002, where Quicken Loans now has space.) A new subculture of entrepreneurial, tech-oriented start-ups, such as Digerati, Detroit Labs, and Stik, has emerged in the shadow of larger firms.

All this action has not gone unnoticed by sophisticated investors. In 2010 Connecticut-based Atlas Holdings LLC purchased several companies that separately owned an energy-from-waste facility in the downtown

as well as an underground steam loop, providing heating for many large buildings and facilities in downtown and midtown Detroit. A new company, Detroit Renewable Energy LLC, has emerged from these acquisitions, bringing synergies and operating efficiencies to clean-energy supply and distribution for the innovation district.

As Gilbert told *Forbes Magazine* in June 2011, "There's the smell of something special happening. Detroit's going to be a big story here in the next several years for America, and I think [businesses should] want to be part of it."[87]

Sue Mosey, the president of the community development organization Midtown Detroit Inc., is informally recognized as the mayor of midtown. She is a lifelong Detroiter, is a graduate of Wayne State University, and has been the head of multiple redevelopment organizations since 1990. If the downtown strategy was led by corporate relocations and small start-ups, the midtown revival has been led by anchor-driven expansions and Mosey's "slow and steady" restoration of the urban fabric.[88] Midtown is home to four major anchor institutions—Henry Ford Hospital, the Detroit Medical Center, Wayne State University, and the College for Creative Studies. Among the seventy-plus sites on the National Register of Historic Places are the Detroit Institute of Arts, the Whitney Restaurant, and the Detroit Masonic Temple (the largest Masonic temple in the world). Over the past decade, Mosey and a dedicated network of institutional partners have helped drive $1.8 billion in public and private investment in midtown.[89] Here are some of the most noteworthy projects:

—Henry Ford Hospital, a major hospital and research complex that employs about 1,200 physicians, recently finished a $300 million renovation that added more patient rooms and operating areas. In 2010 it announced a $1 billion expansion that would include not only new and enhanced health care and medical distribution facilities but also a community health park with commercial, retail, and housing space.[90]

—The Detroit Medical Center, a major health care center that employs about 3,000 physicians, has its own expansion projects under way on its midtown campus, including a new heart hospital and an outpatient pediatric facility. These projects are parts of the overall $850 million investment that the Detroit Medical Center's parent company, Vanguard Health System, has made in the complex over the past several years.[91]

—Wayne State University, the largest public research university in the city of Detroit, is building a $90 million biomedical research facility

to link up with researchers at the Henry Ford Health System. Wayne State has also been home to TechTown, a technology research center and business incubator that since 2007 has provided support to hundreds of companies and thousands of entrepreneurs in industries ranging from life sciences and advanced manufacturing to the arts and alternative energy.[92]

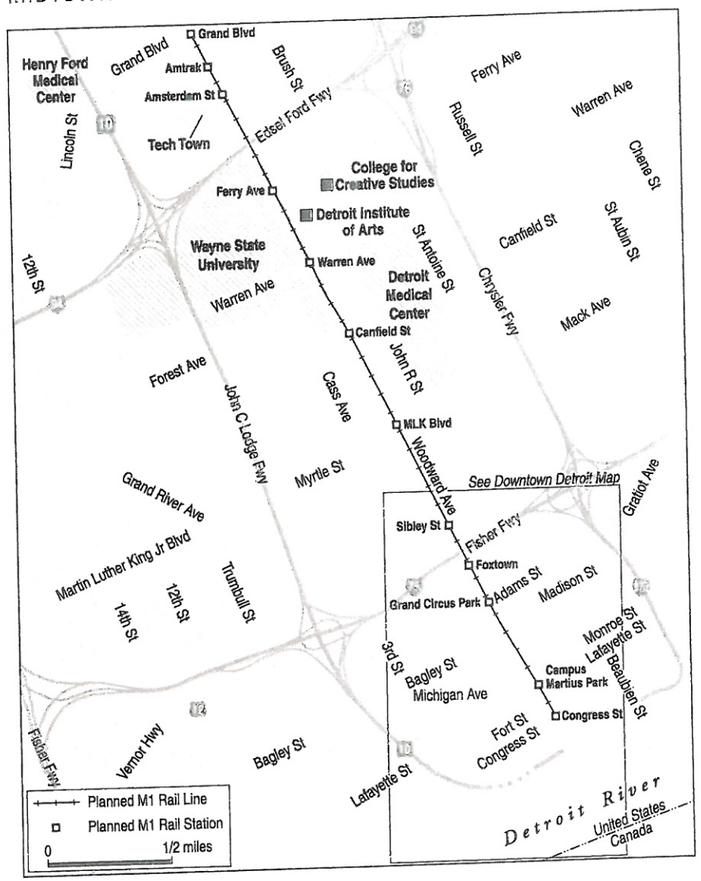
—The College for Creative Studies, one of the top design colleges in the world, expanded in 2008 with a $145 million redevelopment of the 760,000 square-foot historic Argonaut Building (formerly General Motors' first research and design studio). Shinola, a start-up firm that manufactures watches, bicycles, and leather goods, set up production in the Argonaut Building to take advantage of the design talent at the college. As one article notes, "Design drives products, and new ideas from bright young manufacturing designers give Shinola an edge."[93]

And one cultural capstone: in August 2012 voters in Wayne, Macomb, and Oakland Counties approved a property tax increase to raise $23 million annually for the operation of the Detroit Institute of Arts.[94]

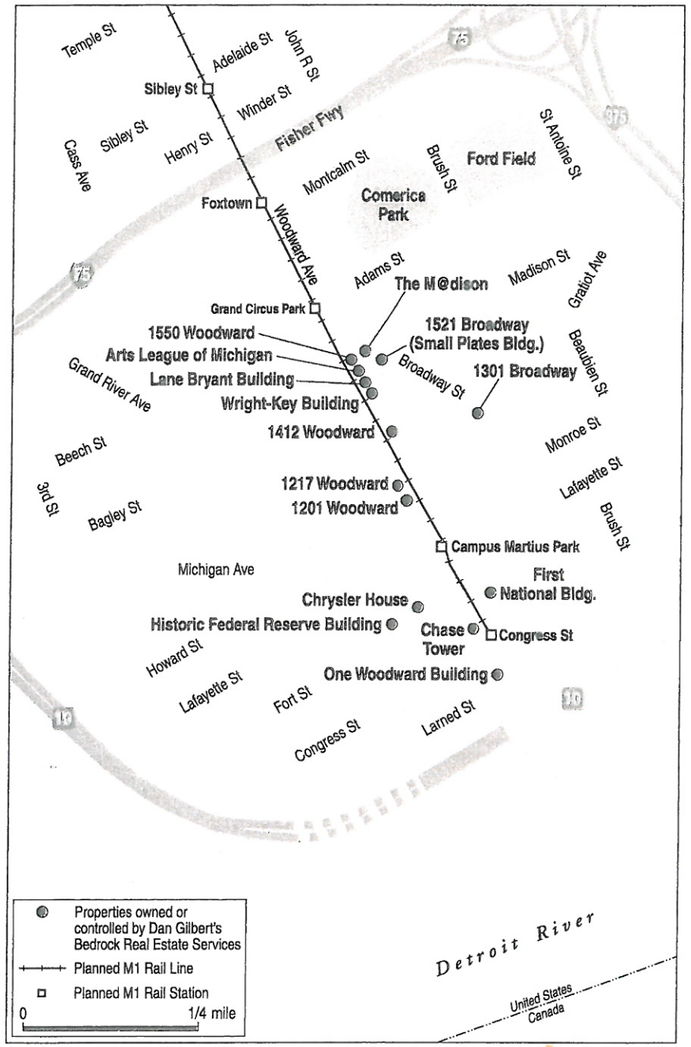
The growing economic base in downtown and midtown (including the historic Eastern Market) provides the economic platform for the development of a full innovation district complete with housing, retail, and services. There are roughly 5,400 businesses in the combined area, employing more than 138,700 workers.[95] Add to that the 32,000 students at Wayne State University and more than 9,500 city government employees, and the numbers suggest an opportunity to catalyze the residential market and all that follows. Detroit is rediscovering the fundamental truth of sound economies: housing doesn't create jobs; jobs create housing. And that is what is happening. As of late 2012, both the midtown and downtown areas had rental apartment occupancy rates of at least 96 percent.[96] As housing goes, so goes retail. The in-migration of new inhabitants is spurring demand for restaurants, bars, grocery stores, coffee shops, and other amenities. Mosey has brilliantly spearheaded an effort to ensure that this revival occurs with a keen attention to the details of historic preservation, distinctive design, and neighborhood planning that separate great urban regeneration from the merely good. A Whole Foods Market is slated to open in midtown in mid-2013, the ultimate sign that the innovation district has arrived.

All this activity—corporate relocation, anchor expansion, entrepreneurial growth, housing, and retail—predates the next infusion of energy and capital: the building of the M1 Rail, a 3.3 mile light-rail line from

MIDTOWN AND DOWNTOWN DETROIT



DOWNTOWN DETROIT



downtown to Grand Boulevard at the upper edge of midtown Detroit. A consortium of public, private, and philanthropic institutions—including General Motors and Chrysler, the Kresge Foundation, and major individual backers such as Dan Gilbert, Roger Penske (the CEO of Penske Racing), and Peter Karmanos (the CEO of Compuware)—has committed more than $100 million to construction of the project.[97] In January 2013 the federal government contributed $25 million, an act made possible only after the Michigan Legislature enacted (and Governor Rick Snyder signed) a law to create a Detroit Regional Transit Authority. As U.S. Secretary of Transportation Raymond LaHood said on making the announcement, "Nobody in America—no community—has ever raised $100 million for a project like this. That is unprecedented. . . . They've done everything we've asked them to do."[98] The symbolism of a sophisticated mass transit system returning to Woodward Avenue (where a streetcar system had run between the 1860s and 1950s) cannot be minimized. World-class transit in the Motor City (financed in part by the major auto companies) sends a signal that mobility in this century will not be driven exclusively by the automobile. The city responsible for the mobility of the twentieth century is adapting to the new mobility of the twenty-first.

WHAT DETROIT TEACHES US

Detroit is drawing a new geography of innovation, tearing down the traditional, artificial borders that have long divided downtowns and midtowns in the United States. Virtually every major city in this country has a strong central business district (mostly for the congregation of government, corporate headquarters, entertainment venues, and some cultural functions), a strong midtown area (where eds and meds and historic museums tend to concentrate), and a state-of-the-art transit corridor, mostly built within the past twenty years, connecting the two. Each of these discrete building blocks brings particular assets that, in turn, provide a platform for a key element of innovation district growth.

Because of their economic, government, and cultural function, the downtown central business districts continue to have large employment bases. They also, as Julie Wagner points out, "have the physical 'bones'—walkable street blocks, the sidewalks, the historic buildings, access to waterfronts and other established infrastructure—that can accommodate a range of residential, commercial, entrepreneurial, retail, and

cultural functions."[99] The midtown areas, for the most part, have different strengths—large student populations and the substantial employment, research, and procurement bases of the universities and medical institutions. Transit corridors are the physical tissue that knits disparate parts of a city together. They have the potential, with smart land use and catalytic policies, to be multidimensional in purpose, expanding transportation choices and mobility, to be sure, but also galvanizing new destinations along their routes, including new residential areas, retail clusters, and economic districts.

Across the United States, fledgling innovation districts are beginning to take hold in this new urban geography of innovation. In Houston, a new light-rail system connects the strong central business district (with its phalanx of energy company headquarters) with the Museum District, the Houston Medical Campus, and the University of Houston. In Cleveland, the new Euclid Corridor Bus Rapid Transit system connects the traditional downtown with University Circle (with Case Western, Cleveland Clinic, and key cultural institutions). In Buffalo, the rapid expansion of the Larkin District and the Buffalo-Niagara Medical Campus in the midtown area is also connected by transit with the central business district and the burgeoning waterfront. Similar stories can be told about Atlanta, Denver, Indianapolis, Minneapolis–St. Paul, Pittsburgh, Philadelphia, Phoenix, Syracuse, and even Las Vegas. The physical and economic platform for an innovation district revolution is in place.

Second, the launch of M1 Rail exemplifies the collaborative spirit and integrated nature of economy shaping and place making at the heart of the metropolitan revolution. Detroit's revival is being inspired, accelerated, and supported by an intricate web of philanthropic and business leaders and a remarkable set of nonprofit and quasi-public intermediaries that are painstakingly connecting the dots between hundreds of separate actions and transactions. The New Economy Initiative for Southeast Michigan—a $100 million consortium of ten local and national foundations—is a major investor in Detroit's midtown and downtown. Since its inception in 2007, the initiative has supported or created several investment funds for start-ups and provided capital for significant place-making infrastructure, particularly in TechTown in midtown and its surrounding area, and its grants have helped launch 417 new companies, create 6,700 jobs, and leverage $261 million in additional investment in start-up companies supported by its grantees.[100]

Living Cities, another philanthropic consortium, has invested $22 million in the Woodward Corridor Initiative to "redensify" the corridor and realize the full potential of the transit investment.[101] The Kresge Foundation alone committed $150 million over the next five years to implement the recommendations and strategies outlined in the Detroit Future City report, doubling down on the investments it has already made along the riverfront, in M1 Rail, in the planning for the Detroit Future City effort, and as part of both the New Economy Initiative and Living Cities.[102] In 2011 the Henry Ford Health System, the Detroit Medical Center, and Wayne State University, along with state and philanthropic support, launched the Live Midtown initiative, which provides financial incentives for employees who move to the area and entices existing renters and homeowners to stay and reinvest.[103] Based on the program's success, a group of downtown corporations—Quicken Loans, Blue Cross Blue Shield, Compuware, Strategic Staffing Solutions, Marketing Associates, and DTE Energy—created the Live Downtown Initiative. And, yes, creative individuals and entrepreneurs are taking responsibility for their blocks and streetscape in the absence of local government services.

Finally, the revival in Detroit has been accomplished, for the most part, without deliberate or purposeful action by either the federal government or the state government. The federal government has been a large investor, but most of those investments (for example, National Institutes of Health investments in Wayne State, Medicare and Medicaid reimbursements at Henry Ford Hospital or Detroit Medical Center, Small Business Administration loans) are made through a routine grant- and loan-making process rather than by any intentionality. The state government, for its part, under the strong leadership of Governor Snyder, has smartly focused on fixing the basics and putting the city's fiscal house back in order. Detroiters, in essence, saw the writing on the wall: No one is going to rescue them. They are on their own and must fend for themselves. As a city in extremis, Detroit validates the fundamental premise of the metropolitan revolution. With Washington in gridlock and states distracted, cities and metros are increasingly on their own to devise, finance, and implement the large and small economy-shaping interventions.

Detroit is an incredible living laboratory where the future of American cities is being demonstrated, one project, one investment at a time. As counterintuitive as it may seem, Detroit's intense civic engagement,

networked leadership, and reevaluation of assets make it a model for other cities and metropolitan areas.

THE REVOLUTION CAN BE VISUALIZED

At its core, the metropolitan revolution entails disruptive acts that respond to disruptive dynamics. The creation of innovation districts across American cities and suburbs clearly fits the mold. Innovation districts combine the physical, social, economic, and technological in new forms and permutations, reflecting the changing values and preferences of our changing population as well as the shifting demands of leading advanced industries and sectors. They represent a departure from both the development patterns and the economic theories of the last half of the twentieth century that dominated cities (large amenity-driven projects like sports stadiums, convention centers, and performing arts facilities) and suburbs (ubiquitous strip malls and big-box uniformity, isolated corporate campuses far from residential communities, near-exclusive dependence on the automobile for all mobility needs). They require an overhaul, an implosion, of traditional conventions, practices, disciplines, financing, norms, and institutions that still make compartmentalization easy and integration hard. This is a revolution in kind, not in degree.

It is easy to imagine how the revolution would happen. Innovation districts would sprout up in metros across the country. They would continually reinvent and remix our notion of work, recreation, and living spaces, creating a blurring of activities across all hours of the day.

They would instigate innovation by new means of social networking, collaborative ventures, and entrepreneurial incubation. They would spread the benefits of innovation through new partnerships with universities, local schools, and community-based organizations to promote education, workforce preparedness, and business development. In doing all this, they would retain their intrinsic sense of organic growth, aligning with the distinctive strengths of disparate places rather than merely imitating the successes of others.

The private finance sector would conform to the needs and demands of these innovation engines, rather than the other way around. There would be ample supply of early-stage venture capital and commercial lending to support the building and expansion of innovation-related firms, reinforced by real estate, small business, and community lending to

create the districts, housing, and mixed-use buildings these firms and their workforce need to thrive. Large commercial banks might establish special innovation district initiatives to bring a spatial coherence to their current aspatial array of products and financing vehicles. Other financial institutions might set up special innovation district funds to invest directly in firms and intermediaries that are at the cutting edge of design, execution, and management of this new form. Philanthropic commitments would be available, from corporate as well as civic organizations, to catalyze the supportive innovation ecosystem as well as efforts to make innovation more inclusive. Crowd-funding entities like Kickstarter, Indiegogo, and others would routinely give entrepreneurs and residents access to pooled capital to pursue their own creative and community projects.

Government would become a true and reliable partner in realizing the potential of the innovation form. Cities and suburban municipalities would revise land-use ordinances and building codes to enable the mixing of uses in districts as well as facilities. To ease design and delivery, disparate government services would be joined together rather than managed separately. The federal and state governments would supply rules and resources that really matter: mortgage standards that encourage mixed-use development and multifamily housing; tax incentives for the preservation of historic buildings and the remediation of brownfield land; sustained investments in basic and applied science and alternative transportation; and sustained support for the commercialization of innovation and the work of regional innovation clusters.

Over time, the people who deliver innovation districts would constitute a new network of metro builders who cut across disciplines, programs, practices, and professions. Modern society has deified specialists and technicians who diagnose and strive to fix discrete problems—say, traffic congestion or slum housing. Metro builders, by contrast, would be fluent in multiple city "languages"—architecture, demographics, engineering, economics, and sociology—and be cognizant of theory and practice. They would see the connections between challenges and work to devise and implement policies that advance multiple objectives simultaneously. Our academies and universities would become central agents in furthering this ambition, breaking down artificial divisions between separate schools, professions curriculums, departments, and self-defeating academic fiefdoms. And new institutions would deliver continuous, multidisciplinary

learning, so that professional evolution could respond to new challenges and changing demands.

This is a tall order, no doubt. But megatrends require megachange. The early rise of innovation districts is a sign that cities and metropolitan areas have truly recognized the demands of a new century. The large-scale replication of innovation districts would be a sign that cities and metropolitan areas are ready to master them.