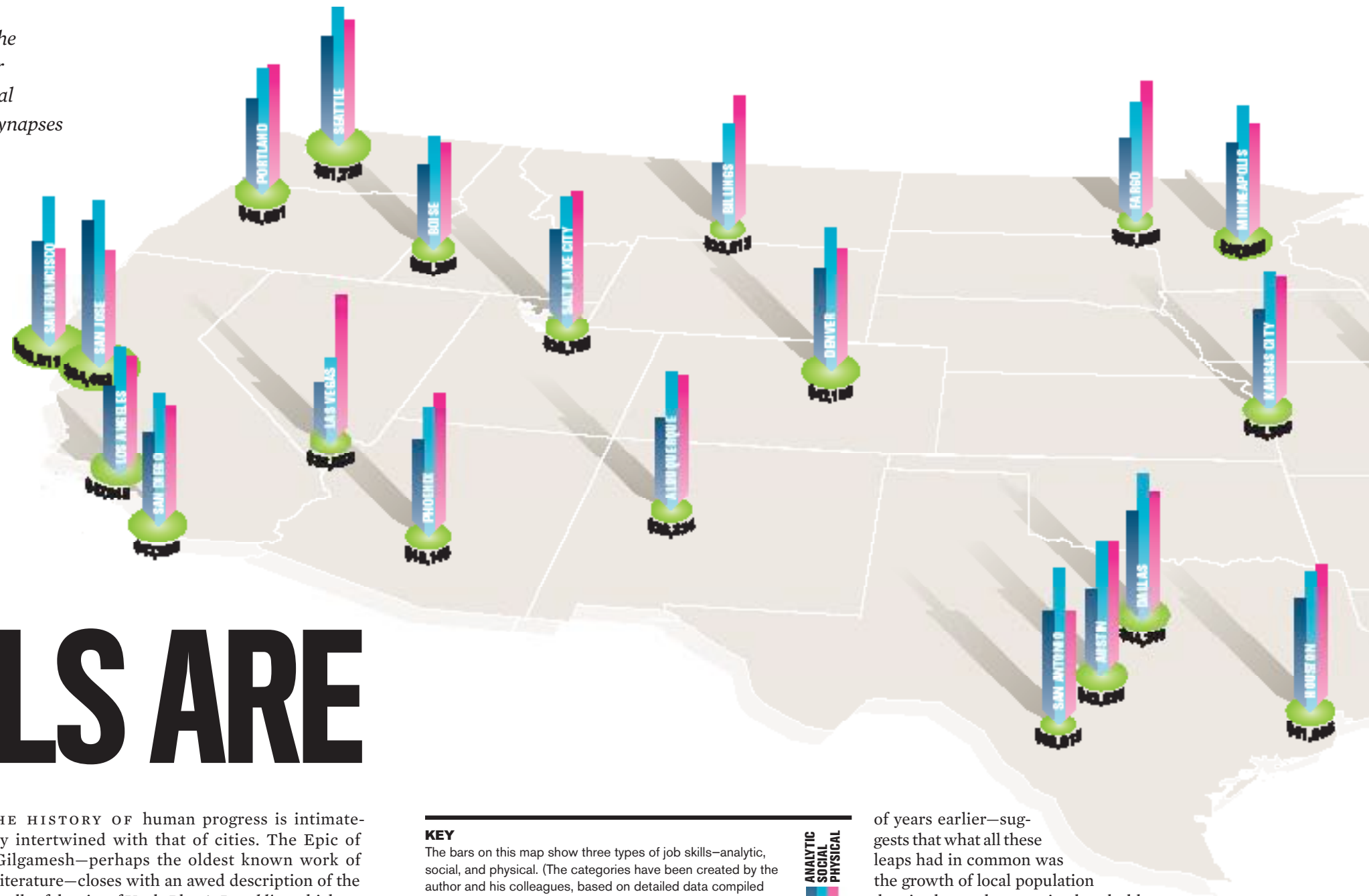


HUMAN PROGRESS, to a large degree, has depended on the continual expansion of social networks, which enable faster sharing and shaping of ideas. And humanity's greatest social innovation remains the city. As our cities grow larger, the synapses that connect them—people with exceptional social skills—are becoming ever more essential to economic growth.

WHERE THE SKILLS ARE



By RICHARD FLORIDA

THE HISTORY OF human progress is intimately intertwined with that of cities. The Epic of Gilgamesh—perhaps the oldest known work of literature—closes with an awed description of the walls of the city of Uruk. Plato's *Republic*—which envisioned an ideal city—was a product of the cultural and intellectual flowering of the earthly city of Athens, as well as a broadside against its politics. Dante, Petrarch, Boccaccio, Brunelleschi, da Vinci, and Michelangelo all were born in or near the city of Florence. Great thinkers, artists, and entrepreneurs—what I call the creative class—rarely come out of nowhere. They cluster and thrive in places where the conversation and culture are the most stimulating.

Even deeper in our past, the congregation of populations into progressively larger, denser, and less isolated groups may have been what enabled humanity's rise. Archaeologists and anthropologists have long noted evidence of a flowering of artistic and material creativity that occurred roughly 40,000 years ago in Europe, reflected in everything from cave paintings, figurines, and jewelry to the complex tools that allowed our ancestors to begin actively transforming nature. Some scientists attribute

KEY

The bars on this map show three types of job skills—analytic, social, and physical. (The categories have been created by the author and his colleagues, based on detailed data compiled by the U.S. Bureau of Labor Statistics on more than 800 occupations.) The height of each bar is a measure of the average mix of skill within a given city's labor force—the higher the bar, the more advanced the skill level within that city.

Circles measure average income within each city.

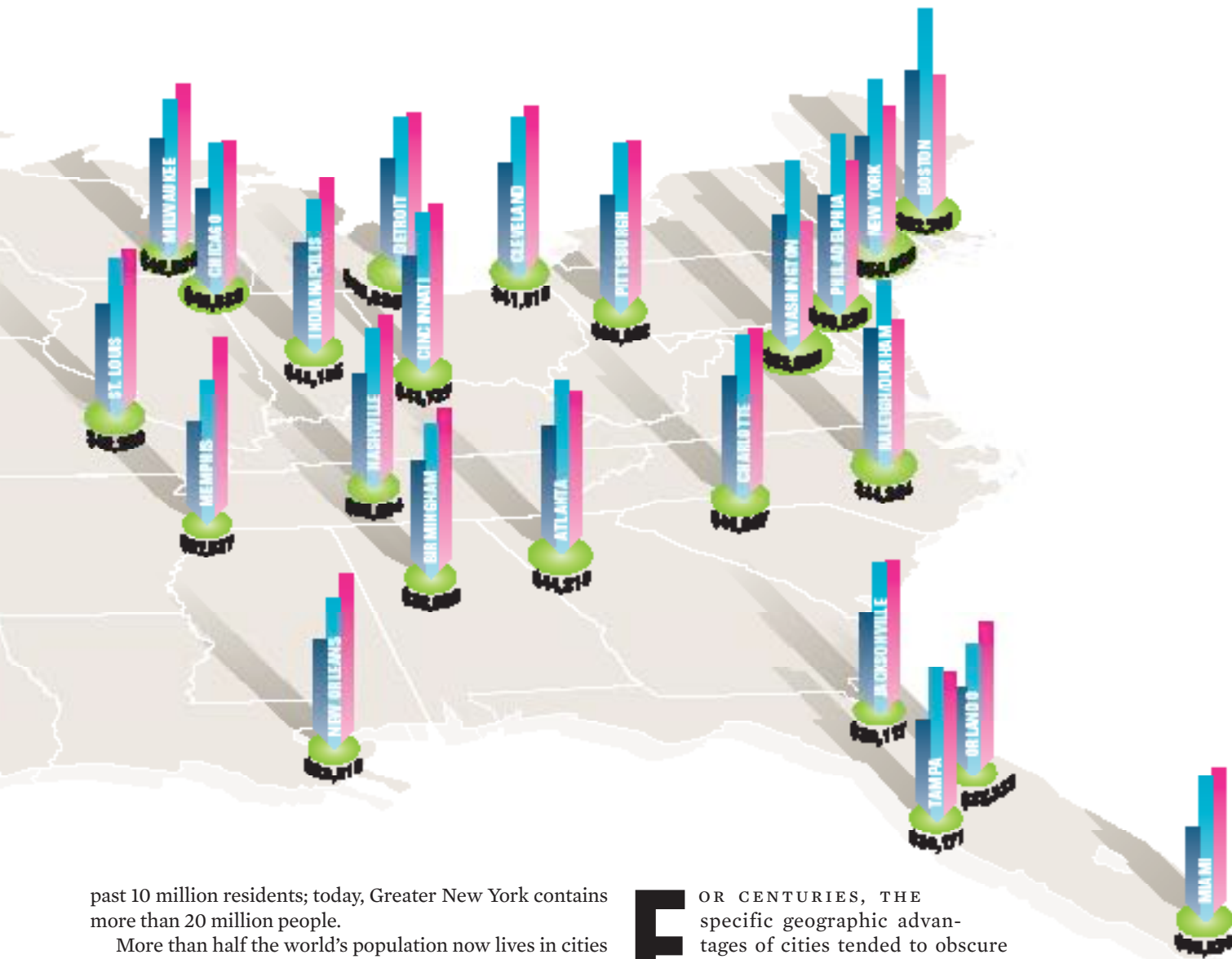


this leap to evolutionary advances in cognition and memory alone. But more-recent research puts communities—not genes—at the center of this evolutionary watershed.

Research by Stephen Shennan at University College London, Robert Boyd at UCLA, and others indicates that shifting demographics was an important cause of early leaps in human development. Shennan's research—which notes that artistic and technological leaps similar to the one in Europe had occurred in Africa and the Middle East tens of thousands

of years earlier—suggests that what all these leaps had in common was the growth of local population density beyond a certain threshold. (Many of these cultural blooms withered, Shennan observes, when populations subsequently shrank.) Boyd's research shows the close relationship between toolmaking advances and population size. As people gathered into larger groups and came into contact with one another more frequently, knowledge was shared, retained, and advanced more easily. From the earliest periods of modern human history, cultural development and technological development have been closely linked to rising population density.

They still are today. One simple indication of the economic advantages held by large, dense cities is their explosive growth over the past century and more—growth that is still continuing rapidly. America's largest cities, each of which held no more than a few hundred thousand people in the mid-19th century, surpassed 1 million by the century's end. By the middle of the 20th century, New York City had surged



past 10 million residents; today, Greater New York contains more than 20 million people.

More than half the world's population now lives in cities and metro areas, a proportion that is projected to grow to more than 70 percent by mid-century. China's economic development in recent decades has been propelled by the rise of its cities—130 of which are home to 1 million people or more, including Shanghai with a metro population of 19 million and Beijing with 17.5 million. The Tokyo metro area, home to more than 35 million people, produces almost \$1.2 trillion in economic output each year, roughly as much as Australia.

Researchers affiliated with the Santa Fe Institute have identified the mechanism that underpins city growth and development as an accelerated rate of “urban metabolism.” Unlike biological species, whose metabolism slows as they get bigger, successful cities exhibit faster metabolism as they grow—a phenomenon that the researchers dubbed “super-linear” scaling. “By almost any measure,” they wrote, “the larger a city's population, the greater the innovation and wealth creation per person.” There seems to be no limit, as yet, to the relationship between greater density and faster growth.

FOR CENTURIES, THE specific geographic advantages of cities tended to obscure their underlying social role. When agriculture powered economic development, cities grew near fertile soils. In the industrial age, access to raw materials and ports became critical, along with the presence of enough physical labor to run large factories. But as those factors become less important, we can see more clearly what has arguably mattered the most all along.

Cities are our greatest invention, not because of the scale of their infrastructure or their placement along key trade routes, but because they enable human beings to combine and recombine their talents and ideas in new ways. With their breadth of skills, dense social networks, and physical spaces for interactions, great cities and metro areas push people together and increase the kinetic energy between them.

As highly skilled people concentrate in these places, the rate of innovation accelerates, new businesses are created, and productivity—and, ultimately, pay—grows. Wages generally increase with city size, as opportunities for specialization

and interaction multiply. Pay for manufacturing workers tends to rise above the national average, for instance, as communities grow beyond 120,000 people. When my colleague Charlotta Mellander and I looked at the distribution of work across U.S. cities and metros, we found that the wages for knowledge-based jobs were markedly higher than average in locations where labor markets number 1 million people or more. In other words, the critical mass for knowledge work is higher than for manufacturing: the knowledge economy thrives at a larger scale.

The U.S. Bureau of Labor Statistics now provides detailed information on more than 800 occupations, allowing us to see, with finer resolution, how different skills lose or acquire value, as cities grow larger and the economy evolves. With three Martin Prosperity Institute colleagues, Mellander, Adrienne Ross, and Kevin Stolarick, I grouped those skills into three categories: analytic, social, and physical.

Even a cursory glance at the relationship between these skills and income confirms how far the U.S. economy has evolved beyond the industrial age. Analytic and social skills add greatly to wages and salaries: after ranking every occupation by the type of skill required to perform it, we observed that on average, occupations in the top quarter as measured by required analytic skill pay \$25,600 more than those in the lowest quarter; those that rank in the top quarter by required social skill pay \$34,600 more than those in the lowest quarter. Occupations in the top quarter by required physical skill, on the other hand, pay \$13,600 less than those that demand the least physical skill (not uncommonly, knowledge-based jobs). That's not to say that an individual construction worker will make less as he or she becomes more skilled—the opposite is true. But by choosing an occupation in which physical skill is predominant, workers are, by and large, isolating themselves from the more dynamic and higher-paying parts of the economy.

What's perhaps more telling about the data is the way that skills are distributed around the country. Jobs requiring physical skill cluster in small and medium-size metro areas—industrial centers where land for factories is relatively inexpensive. Jobs featuring analytic skill are sparse in these places, and heavily concentrated in larger metro areas—indicating the rising benefits of having high numbers of well-educated, highly intelligent people working close together. And jobs requiring the highest level of social skill are the most concentrated in the very largest metro areas—where, combined with the high prevalence of analytic skill, they underpin faster rates of innovation and growth.

Highly developed social skills are different from mere sociability. They include persuasion, social perceptiveness, the capacity to bring the right people together on a project, the ability to help develop other people, and a keen sense of empathy. These are quintessential leadership skills needed to innovate, mobilize resources, build effective organizations, and launch new firms. They are highly complementary to analytic skills—and indeed, the very highest-paying jobs (and the most robust economies) usually require exceptional skill in both realms. Nonetheless, social skills

seem to grow ever more essential as local economies grow larger and more complex. In this sense, cities are like brains: their growth and development require the growth and development of an increasingly dense web of synaptic connections.

There is a signal irony in the concentration of social skill within big cities. Not so long ago, many people deplored cities as dirty, dangerous places, where residents did their best to avoid chance encounters with strangers. City dwellers were thought of as cold, cynical, and unfriendly. Yet highly developed social skills are in fact a hallmark of our big cities—and the cities are prospering because this is so.

THE HIGH AND RISING importance of human connectivity has significant implications for the future. When we think about helping city-regions run smoothly and efficiently, we typically focus on transportation improvements and other measures to keep people moving—and indeed, the efficient circulation of people and goods is critical to the success of large cities. So too is finding ways to keep cities and metro areas at a human scale, encouraging easy interaction even as cities grow more populous. Ever-higher buildings allow greater density, for instance, but skyscrapers that are too tall risk becoming vertical suburbs, whose residents and occupants are less likely to engage frequently and widely with the hurly-burly of city life. And ultimately, the ease, frequency, and range of interaction in cities are what really matter.

Whatever their layouts and transportation systems, cities can't work as innovative engines unless they are populated by people who can effectively promulgate, and marshal support for, new ideas. Given the rising demand for social skills in our economy, it is curious that we devote so few of our educational resources to building them. A growing chorus has noted the failure of U.S. schools to adequately teach math, science, and technology, but social intelligence

is equally important, and we need to cultivate it more systematically. In the 19th century, the public-school system grew partly from the need to teach the growing immigrant workforce rudimentary reading, writing, and math skills. University education in the years around World War II was predicated, to some extent, on the training of a cadre of technicians and managers to run the country's increasingly sophisticated factories. Today's students need a stronger focus on teamwork, persuasion, and entrepreneurship; a better integration of liberal arts with technological literacy; and an emphasis on the social intelligence that makes for creative collaboration and leadership.

Sociability has been the key to humanity's progress for thousands of years. As we look toward the future, we need to find ways to hone and enhance it, and to keep enabling the crucial interactions on which new innovation will depend. ■

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