

Face-to-Face Places

*Networked computers are
changing the physical world
faster and more radically than
did automobiles.*

JOEL GARREAU

HUMAN SETTLEMENTS are shaped by transportation. Ocean-going sailing ships produced cities such as Boston; railroads created Chicago—both the area around the El (intra-urban rail) and the area around the stockyards that processed wealth from the hinterlands (national rail); automobiles produced metropolitan areas with multiple urban cores, such as Los Angeles; and passenger jets allowed cities to grow in such hitherto inconvenient locations as Houston, Atlanta, and Seattle.

The networked computer, the newest form of transportation, is massively transforming the provision of goods, jobs, and wealth, as demonstrated by the rise of

Google and Amazon, as well as the collapse of industries from music to newspapers.

In physical space, what I refer to as the “Santa-Fe-ing” of the built environment is a combination of equal and seemingly opposite effects: dispersion and urbanity. It is taking place far beyond our old ideas of urban or even suburban, and emerging faster even than was the case with the automobile suburbs.

The growth of computer technology has been so unusual, it requires some background. On July 18, 1968, Gordon E. Moore and Robert Noyce founded a company called Intel. As early as 1965, Moore observed in an article for the thirty-fifth anniversary issue of *Electronics* magazine, that the complexity of “minimum cost semiconductor components” available for a dollar had been doubling once a year, every year, since the first prototype microchip had been produced six years before. Then came a breathtaking prediction: This doubling would continue every year for the next ten years.

What came to be known as Moore’s Law can be simply stated: The power of a dollar’s worth of information technology will double every eighteen months, for as far as the eye can see. The twenty-seventh doubling occurred on schedule in 2002, with a billion-transistor chip. The computer industry still regularly beats its clockwork-like eighteen-month schedule for price-performance doubling. Put another

way, the price of any given piece of silicon can be expected to drop by half every eighteen months. Who hasn’t eyed a whiz-bang \$2,000 computer as a Christmas present, only to see an equivalent machine drop in price to \$1,300 by the next holiday? Before ten Christmases pass, the original gift has been cast aside. Not because it doesn’t work—it chugs along just fine—but it now seems slow and limited. The power that could have only been bought with \$2,000 ten years before can be expected to be available for \$31.25, according to Moore’s Law. It no longer sits on a desktop, but has disappeared into watches, cell phones, jewelry, even refrigerator magnets. Apple’s iPhone has more processing power than did the entire North American Air Defense Command in 1965.

“Doubling” means the next increment is as large as *all* the previous steps put together. The thirty-one consecutive doublings of anything man-made that we have achieved at this writing—an increase of well over one billion times in less than forty years—is unprecedented in human history. It is useful to compare the chip revolution with another great technological transformation: railroad-building. The number of miles of railroad track in the United States doubled nearly seven times in the ten years between 1830 and 1840, from twenty-three miles to 2,808 miles. This was an impressive increase, as rapid and world-altering as was the computer

chip's in the 1960s. But this pace of growth could not be sustained. Railroads required land, steel, and coal to expand. Since these were finite resources, the growth began to level off, and it took forty more years, until 1880, to get the next five doublings, to almost 100,000 miles of track. It took another thirty-six years—until 1916—for U.S. railroads to make their final doubling, reaching a peak mileage of more than 250,000 miles.

American railroads changed everything they touched, and transformed a struggling, backward, rural civilization, mostly hugging the East Coast, into a continent-spanning, world-challenging behemoth. New York City went from a collection of villages to a world capital; Chicago went from a frontier outpost to a brawny goliath. The duration of a journey from New York to San Francisco shrank from four months to six days. The West became a huge vacuum, sucking record numbers of immigrants across the Atlantic. Train schedules were marked in minutes, and suddenly, every farm boy needed a pocket watch. For many of them, catching the train meant riding the crest of a new era that was mobile and national.

As railroad expansion ran out of critical fuel—including money and demand for its services—society tried to adjust to the astounding changes that had occurred. Historically, adapting to this sort of upheaval has been like shooting rapids.

People start in the calm waters to which they are accustomed, bump and flail through the roiling rapids, and emerge around the bend into another patch of calm water, catch their breath and assess what they've accomplished. The last transcontinental railroad completed in the United States was the Milwaukee Road in 1909; in 1915, the millionth Model T Ford rolled off the assembly line, and another transformation began; in 1968, Moore and Noyce founded Intel.

THE GREAT TRANSFORMATION

How has the networked computer affected human settlements? According to William J. Mitchell, the former head of the architecture and planning department at MIT, cities are built out of only about one hundred classes of real estate. All these classes are currently being transformed. The classic example is the bookstore. If all you want to do is buy a book, the easiest method today is online with Amazon. For people living in cultural backwaters where, just ten years ago, buying or even borrowing a non-best-seller was a chore that took weeks, hundreds of thousands of titles are now only one click away. Does this mean bookstores have disappeared? Half of the independents have, but for those that have survived and thrived, the

critical elements are no longer bookshelves, but couches, cappuccino machines, and cafes. Bookstores have become social places to linger among like-minded people.

What about grocery stores? What happens when it becomes cheaper for the supermarket to deliver your groceries to you rather than heat, light and pay rent and taxes on its store? Under what circumstances would shoppers get in their cars and drive to a grocery store? Personally, I want to have face-to-face contact with my tomatoes—or anything else I might find in a farmers' market, and I'm not sure I would trust the kid at the dot-com to pick out my spare ribs. However, if a grocer wants to ship me barbecue sauce—or paper napkins—I don't mind. Most of the products in a supermarket are flash-frozen, shrink-wrapped, and nationally advertised. We are in the midst of a burgeoning freight revolution, in which the stuff is coming to us, rather than us going to the stuff—as anybody who has shopped for Christmas presents lately may have noted.

What about college campuses? The University of Phoenix, an online learning establishment, has become one of the hottest growth stocks, and Internet MBAs abound from some of the world's most distinguished schools. So why bother to come to a physical place? After all, distance learning is nothing new; Benjamin

Franklin conducted correspondence classes. The U.S. military is awash in senior officers with advanced degrees from the University of Maryland, which has pioneered its outreach programs to people in remote locations, such as army bases. However, distance learning will always be everyone's second choice. It works best for people who do not have the time or money for the conventional academic experience. The first choice remains the traditional university campus, which is why they are so hard to get into—and so expensive. What makes college so desirable? Sitting in class and absorbing information from a lecturer is only a tiny part of the experience. College is where many people meet their first spouse, and where they develop a network of friends that they'll likely maintain for life. It's an entertainment center and an athletic center. As for learning, most of the stuff that has stuck with me came out of late-night dorm sessions, engaging in face-to-face contact with smart people.

FACE TO FACE

Many of the historic reasons for cities are gone. It has been a century since workers have had to live within walking distance of their workplaces. Today, one does not even need be within driving distance of one's office—as anyone with a cell phone

knows. You certainly don't need shops to buy anything a dot-com is willing to sell. There is one—and only one—good reason for congregating in cities in the near future: face-to-face contact.

How many people have had this experience? You are standing around a shared printer in the office, and a co-worker asks what you are working on. A conversation ensues. "Oh really? Did you know that Jane was working on something like that?" "There's this guy you've *got* to talk to; I'll send you his phone number as soon as I get back to my desk." "I was just reading about that very subject; I'll email the article." This kind of casual face-to-face contact is irreplaceable, no matter how cheap or immersive video technology gets. Humans always default to the richest experience that does the job and, in that sense, face-to-face contact is the gold standard. Face-to-face contact allows us to read the other person's expressions and body language with the greatest precision, which is a key factor whether we're trying to build trust, engage in high-value negotiation, determine intent, fall in love, or simply have fun.

The value of face-to-face contact suggests that some old settlement patterns will endure. Some pedestrian-friendly villages are embedded in old downtowns such as Adams Morgan in Washington, D.C; some can be found in edge c

ities such as Reston, Virginia, and Emeryville/Berkeley in California.

But many, such as Santa Fe, are located far beyond any current definition of an urban area. Suppose you decide that you can get all the face-to-face contact you need during only two days a week. Would that influence where you lived? Would the mountains or the seashore start looking good? Suppose you came to the conclusion that you could get all the face-to-face you needed three days a month. Would the Caribbean be an option? People at the end of a vacation in a particularly nice place used to ask themselves, "Why am I going back?" Now, they ask, "Why *am* I going back?"

Moore's Law is transforming residential real estate. In the United States, Santa-Fe-like growth is showing up in places far beyond any metropolitan area: the Big Sky Country of Montana, the Gold Country of the California Sierras, the Piedmont of Virginia and North Carolina, and the mountains and coasts of New England. All these areas have attractive, walkable communities that put an increasingly high value on whatever is precious about a place that cannot be digitized.

Santa Fe, the original example, is more than 800 miles from Los Angeles, yet it is only half-jokingly referred to as L.A.'s easternmost suburb. Although it is far from any major metropolitan area, and has a population of only 62,000—not

much more than a small town—Santa Fe is home to distinguished restaurants, a world-renowned opera, boutique theaters, a film festival, and a variety of quirky shops that even include used boot stores. In addition, it has charming architecture, and beautiful desert and mountain vistas.

A list of the fastest appreciating metropolitan areas, in terms of residential real estate values (Table I), confirms the Santa-Fe hypothesis. The list features small places that, thanks to technology, are highly urbane and highly conducive to face-to-face contact, while being widely dispersed and only marginally urban in terms of size. Wenatchee, Washington, number one on the list, is a classic case. At the eastern foot of the Cascade Mountains, the place has a great deal of sunshine, great skiing, great views, and plenty of water from the mountain runoff. It is within reasonable driving distance from Seattle. Software people start by going there for weekends, and then decide that with their BlackBerries and laptops, they can go up a day early. Then they stay a day later. Then they find themselves going back to “the city” only for major meetings. Then they get sick even of that and start their own businesses in “where-the-hell-is Wenatchee, Washington.”

There is only one major metro area on the list: Miami. Metro Miami notably includes South Beach and Coral Gables,

both classic examples of urbane places that are highly conducive to face-to-face contact, and both effectively Santa-Fe-like villages embedded in a larger metropolitan area. Table I covers only places that are large enough to be considered metropolitan areas. If the Santa Fe-ing of America hypothesis is correct, it would not be surprising to see similarly great appreciation in places that, thanks to technology, have become highly urbane and highly conducive to face-to-face contact, yet are too small and too remote yet to be considered metropolitan. It would also not be surprising to see similar places that are statistically buried in very large metropolitan areas hugely outperform their region’s overall market.

The Santa-Fe-ing pattern of dispersal plus aggregation mimics the behavior of corporations over the last half century. Corporations located their operations wherever they found comparative advantage. With enough mainframes and toll-free telephone lines, they could put their headquarters in one place, their research and development facilities, their factories, their back offices, and their call centers in others. During the Eighties, this information-technology-driven dispersal contributed hugely to the rise of aggregations that I called “edge cities,” places like the Route 128 corridor around Boston. Corporations require, above all, a qualified workforce. If the facility in question today

Table I: Fastest appreciating residential real estate by metro area (September 2007)

| | | 1-YR. | 5-YR. |
|-----|-------------------------------------|--------|--------|
| 1. | Wenatchee, Washington | 25.6 % | 70.6 % |
| 2. | Provo-Orem, Utah | 19.7 | 43.9 |
| 3. | Grand Junction, Colorado | 16.8 | 60.1 |
| 4. | Gulfport-Biloxi, Mississippi | 15.2 | 52.4 |
| 5. | Myrtle Beach-Conway, South Carolina | 14.9 | 69.1 |
| 6. | Boise City-Nampa, Idaho | 14.5 | 70.9 |
| 7. | Corvallis, Oregon | 13.9 | 52.2 |
| 8. | Asheville, North Carolina | 13.6 | 56.7 |
| 9. | Las Cruces, New Mexico | 12.6 | 60.1 |
| 10. | Miami-Miami Beach, Florida | 11.4 | 131.3 |
| 11. | Mobile, Alabama | 11.2 | 38.6 |
| 12. | El Paso, Texas | 11.2 | 51.4 |
| 13. | Lynchburg, Virginia | 10.9 | 46.2 |
| 14. | Scranton-Wilkes-Barre, Pennsylvania | 10.3 | 41.3 |
| 15. | Baton Rouge, Louisiana | 10.2 | 38.5 |
| 16. | Flagstaff, Ariz.-Utah | 9.4 | 100.5 |
| 17. | Missoula, Montana | 9.1 | 62.0 |
| 18. | Savannah, Georgia | 9.0 | 50.4 |
| 19. | Nashville, Tennessee | 8.3 | 33.4 |
| 20. | Wausau, Wisconsin | 7.8 | 29.9 |

Data courtesy of Hanley Wood

is a sneaker factory, that means people who will work for pennies an hour, and the answer might be Malaysia. If the facility is a computer research laboratory, the answer is places where smart people were willing to cluster, like Silicon Valley—or Bangalore.

The core premise of the Santa-Fe-ing hypothesis is that the same kind of choice is now available to millions of Americans. Because Moore's Law brings technology to the masses at an accelerating rate, individuals will be able to live, work, play, pray, and shop wherever they see a comparative advantage. Today people of

means are attracted by this scenario of dramatically different settlement patterns that feature new aggregation—widely dispersed. However, as the price of information technology continues to drop precipitously, the networked computer will become a global influence on the built environment, shaping the way the middle class and even the working class live, just as railroads, automobiles, and passenger jets once did.