RISE
OF THE
AEROTR

AS COMPETITION SHRINKS THE GLOBE, THE WORLD IS BUILDING GIANT AIRPORT-CITIES. THEY LOOK MONSTROUS TO AMERICAN EYES— AND THAT COULD BE A PROBLEM.

The Hong Kong International Airport Residential Tower Developments, complete with parks, pools, and tennis courts, stand minutes away from the HKIA runways.

BY GREG LINDSAY
PHOTOGRAPHY BY NIKOLAS KOENIG

OPOLIS

The name

wasn't terribly auspicious: Nong Ngu Hao, the "Cobra Swamp." But the location, a mammoth piece of ground

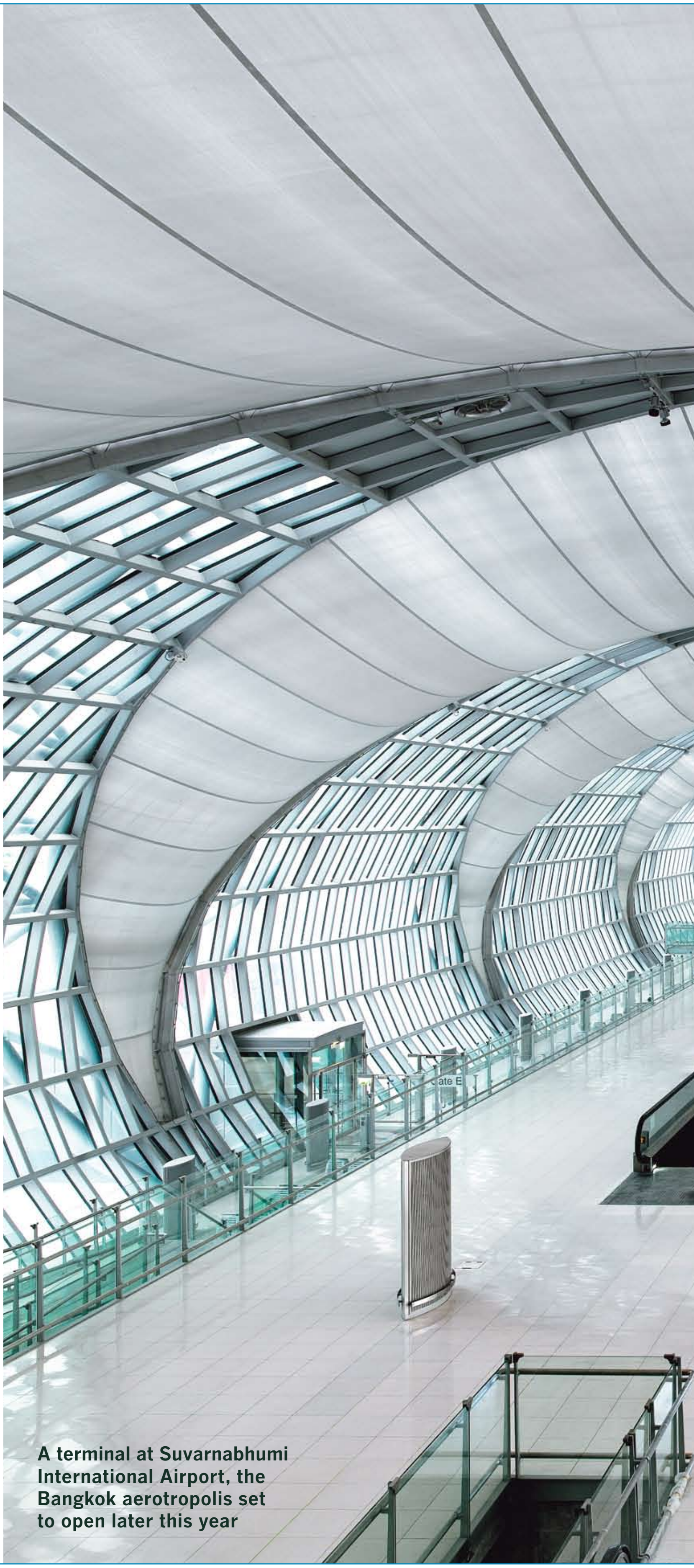
in the sparsely settled landscape between Bangkok and the southern coast, was nearly perfect. Thailand's leader at the time, the visionary-if-dictatorial field marshal Sarit Thanarat, had chosen this spot to build his country's bridge to the 21st century, in the form of a gleaming international airport. It would be a long time coming.

The field marshal died suddenly in 1963, and the airport was postponed for decades; meanwhile, Thailand's neighbors either eviscerated themselves or else offered up their cities as the First World's factories. By the time the 21st century actually came into view, the field marshal's democratically elected heirs watched enviously as the Dells, Seagates, and Motorolas of the world parceled out pieces of their sprawling supply chains across Indochina, creating hundreds of thousands of jobs for lottery-winning cities such as Kuala Lumpur and Singapore.

But before the end of this year, on a still-soggy tract that now lies at the creeping border of Bangkok's suburbs, a new $4 billion mega-airport will finally open, forming the heart of a nascent city. When it's finished, the erstwhile Cobra Swamp, now Suvarnabhumi (the "Golden Land"), will pump more than 100 million passengers a year through its glass portals, about as many as JFK, LaGuardia, and Newark aiports combined. Within 30 years, a city of 3.3 million citizens—larger than Chicago now—will have emerged from the swampland.

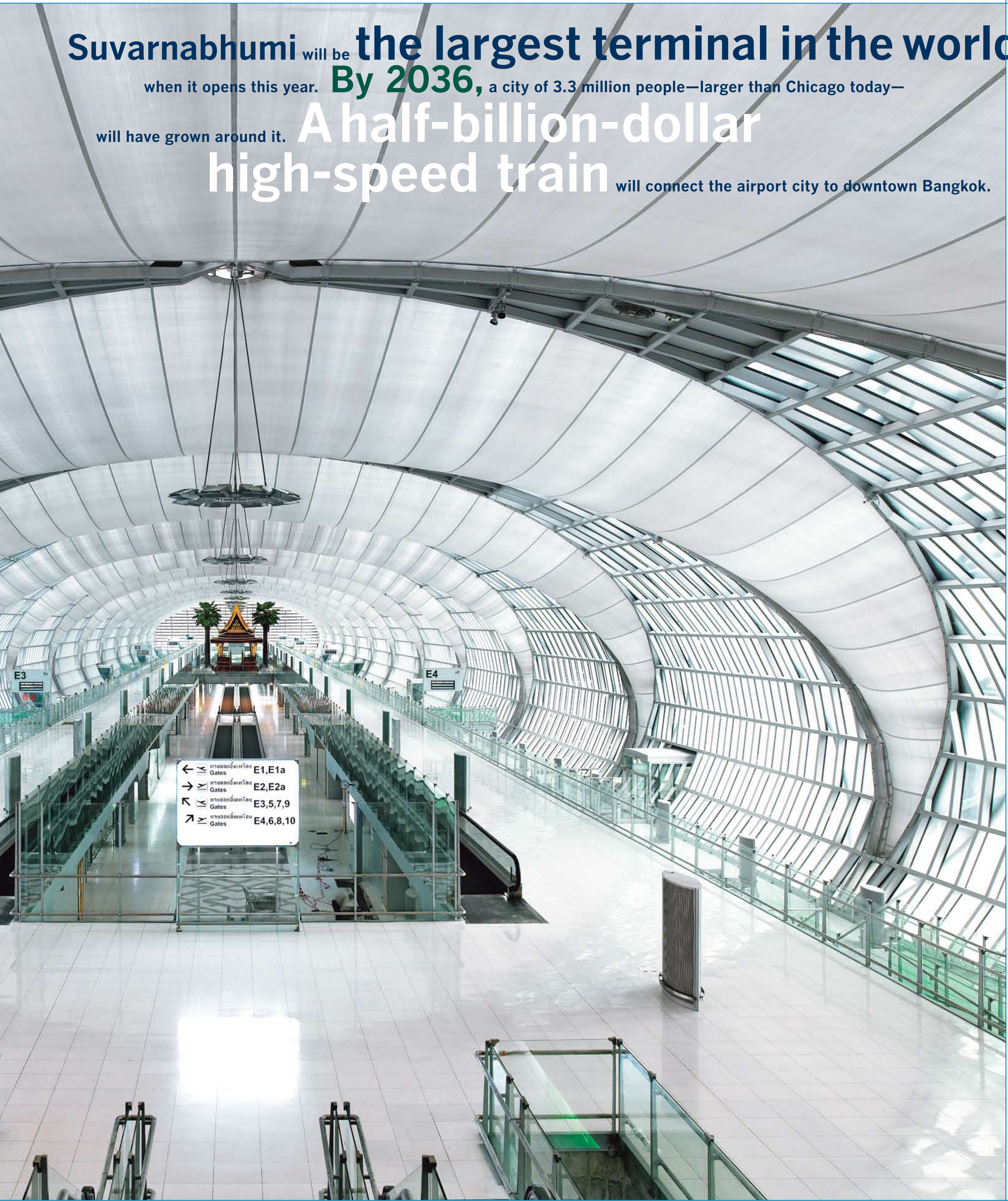
To the jaundiced American eye, such a project might appear to be the terminal metastasis of the sprawl represented by O'Hare, LAX, or JFK. But to dismiss it as the product of Asia's infatuation with all things mega would be to miss the carefully calibrated machinery underneath. It's a machine U.S. companies ignore at their peril at this time of escalating global trade and frictionless competition. It even has a name, the "aerotropolis," and a creator, John Kasarda.

In the relatively obscure world of urban planning, Kasarda, a professor at the University of North Carolina's Kenan-Flagler Business School, has made a name for himself over the past decade with his radical (some might say bone-chilling) vision of the future: Rather than banish airports to the edges of cities and then do our best to avoid them, he argues, we should move them to the center and build our cities around them. Kasarda's research has laid bare the invisible plexus of air-cargo networks that have shrunk the globe (much as railroads did for the American West). And his conclusions are expressible as a



A terminal at Suvarnabhumi International Airport, the Bangkok aerotropolis set to open later this year

Suvarnabhumi will be **the largest terminal in the world** when it opens this year. **By 2036,** a city of 3.3 million people—larger than Chicago today—will have grown around it. **A half-billion-dollar high-speed train** will connect the airport city to downtown Bangkok.



series of simple numbers: Over the past 30 years, Kasarda will tell you, global GDP has risen 154%, and the value of world trade has grown 355%. But the value of *air cargo* has climbed an astonishing 1,395%. Today, 40% of the total economic value of all goods produced in the world, barely comprising 1% of the total weight, is shipped by air (and that goes for more than 50% of total U.S. exports, which are valued at $554 billion). Raw materials and bulkier stuff still take the slow boats, but virtually everything we associate with our postindustrial, value-added economy—microelectronics, pharmaceuticals, medical devices, Louis Vuitton handbags, sushi-grade tuna—travels via jumbo jet. We may think of the 1960s as the jet-set era, but the supremacy of (soft) airpower has only now begun to reshape our ideas about how cities should look, how they should function. "They're now effectively a part of global production systems," Kasarda says, "and without that connectivity, you're out of the game."

Those statistics lay out much of the story line of the coming age of global competition, and it's a story being written by many of our most formidable current and future rivals. Hong Kong is premising its entire world-trade strategy on the primacy of the airport: Its Chek Lap Kok already has a mini-city stationed on a nearby island for its 45,000 workers, and SkyCity, a complex of office towers, convention centers, and hotels will soon be visible from its ticket counters. On the Chinese mainland, construction has begun on Beijing Capital Airport City, a $12 billion master-planned city of 400,000, and a massive airport expansion is coming to the city of Guangzhou, in the Pearl River Delta. Thirty-three miles to the south of Seoul, New Songdo City, billed as the most ambitious privately financed project in history, is taking shape in the Yellow Sea: The metropolis of 350,000 people, many of them expatriates living and working on-site for multinationals, is being built on a man-made peninsula the size of Boston. The estimated $20 billion cost is being underwritten by Korea's largest steel producer and by the real-estate developers from the U.S.-based Gale Group.

The same process is taking place elsewhere in the world as well. Several cities in India will see their airports dramatically scaled up in the coming years. The endless building spree in Dubai includes construction of the world's largest aerotropolis—Dubai World Central—which will begin opening in stages as early as next year. (By the time it's completed, DWC will have more than twice the capacity of Frankfurt's airport and a permanent population of 750,000, all at an estimated cost of $33 billion.) In Amsterdam, office space next door to Schiphol Airport costs more per square foot than an open loft on one of the city's picturesque 17th-century canals.

The aerotropolis represents the logic of globalization made flesh in the form of cities. Whether we consider globalization to be good or simply inevitable, it holds these truths to be self-evident: that customers on the far side of the world may matter more than those next door; that costs must continually be wrung from every process; that greater efficiency is paramount, followed closely by agility; and that distance equals time, which equals friction. To cope with these demands, we've already taken to living much of our lives in the digital world. But for every laptop order that zips to Penang via email, a real 747 must wing its way back with the laptop itself in its hold. If the airport is the mechanism making that possible, everything else—factories, offices, homes, schools—will be built in relation to it. "This is the union of urban planning, airport planning, and business strategy," Kasarda says. "And the whole will be something altogether different than the sum of its parts."

A WELL-OILED MACHINE

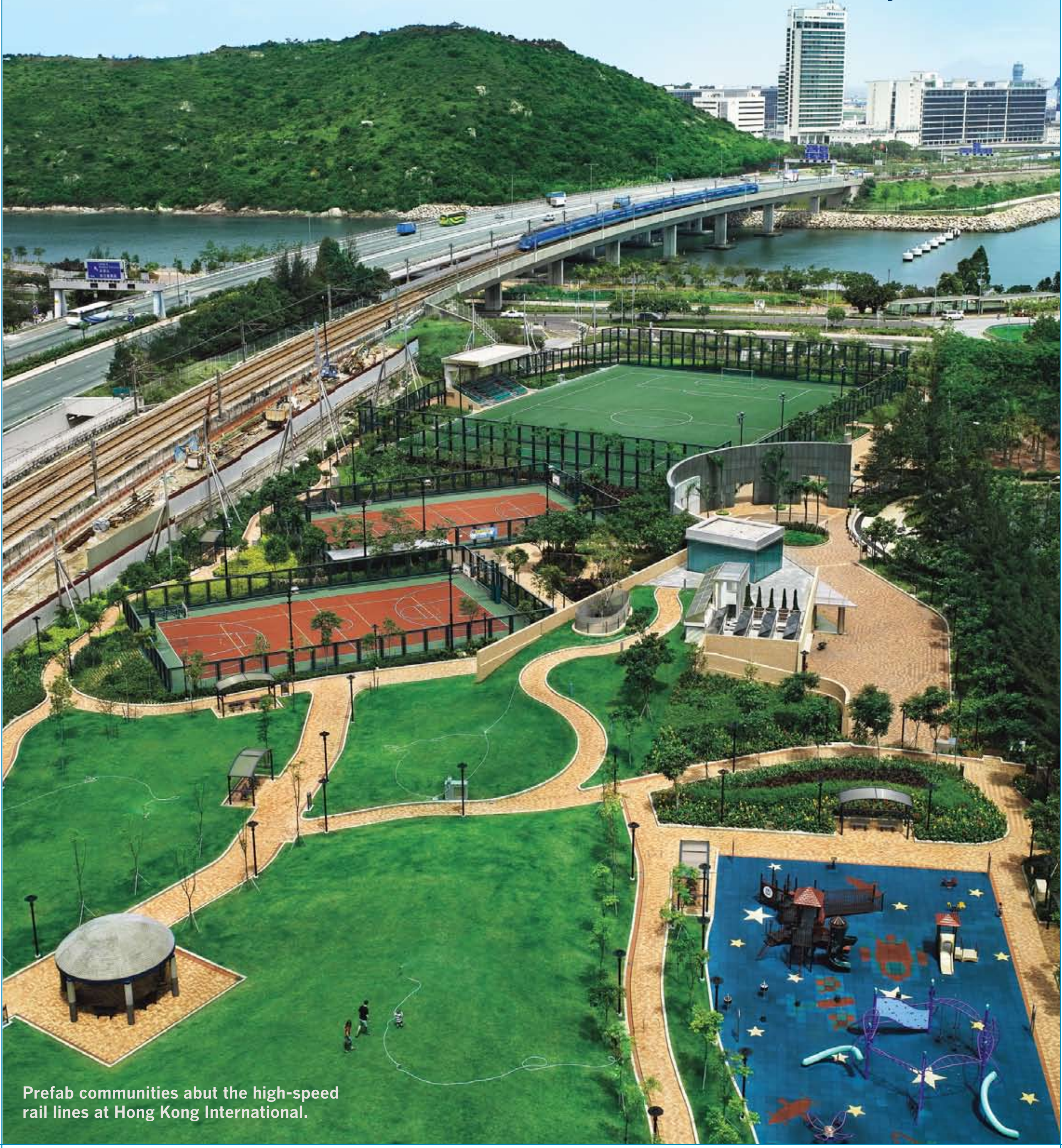
>> HISTORICALLY, CITIES HAVE SPRUNG UP at the junctions of oceans and rivers (New Orleans) or railroad networks (Chicago), which made the docks or the blocks around the central station the choicest real estate in town. But "cities are always shaped by the state-of-the-art transportation devices present at the time of their founding," observes Joel Garreau, author of *Edge City* and chronicler of American sprawl. "The state of the art today is the automobile, the jet plane, and the networked computer. Because of the airport, it's possible to imagine a world capital in a place that was once an absolute backwater—a Los Angeles or a Dallas appearing in an utterly improbable location, including Bangkok."

The budding city surrounding Suvarnabhumi illustrates Kasarda's claim that "the three essential rules of real estate have changed from 'location, location, location' to 'accessibility, accessibility, accessibility.' There's a new metric. It's no longer space; it's time and cost. And if you look closely at the aerotropolis, what appears to be sprawl is slowly evolving into a reticulated system aimed at reducing both." In his sketches for Suvarnabhumi, the outermost rings extend nearly 20 miles into the countryside from the runways. There, giant clusters of apartment towers and bungalows will take shape; the former will house Thais working the assembly lines and cargo hubs in the inner rings, the latter the expatriate armies imported by the various multinationals expected to set up shop around the airport. (No fewer than 10 golf courses are planned to keep the expats happy, not to mention shopping malls, movie theaters, and schools that seem airlifted straight from southern California.)

Moving in from the residential rings, the next layer will likely be occupied by the manicured campuses of those same multinationals—the back offices, R&D labs, and regional headquarters of the Dells and Motorolas that have been persuaded to relocate. Here, one will also find the hotels, merchandise marts, convention centers—anything and everything to sustain the knowledge workers laboring in the shadow of the airport. In the innermost rings, essentially abutting the runway fences, will be the free-trade zones, factories, warehouses, and logistics hubs designed for the FedEx/DHL/UPS combine—the just-in-time manufacturers and suppliers for whom time and distance from the belly of the 747 equals, quite literally, cost. New six-lane highways will link the inner and outer rings, with semitrailers barreling down dedicated "aerolanes" while residents stroll along prefab boulevards. A high-speed rail link costing more than a half-billion dollars will connect Suvarnabhumi to Bangkok.

"This is the key to Thailand's growth over the next five years," says Suwat Wanisubut, director of the Suvarnabhumi Airport Development Committee. "No other project is this big. It will bring high-tech companies to this region from Malaysia, Singapore, and even southern China. We are now competing directly with them, and even with Korea and Japan."

At **$20 billion, Chek Lap Kok,** built on **man-made islands** in Hong Kong's harbor, is the **most expensive airport ever** (at least until Dubai's is complete). The terminal contains a **luxury mall** and the city's largest hotel; **45,000 workers** live on an island nearby. SkyCity will add more malls, **office space, hotels, and convention centers,** and **trains and ferries** connect the airport to the Pearl River Delta and Hong Kong **Disneyland** next door.



Prefab communities abut the high-speed rail lines at Hong Kong International.

Clockwise from top left: John Kasarda, father of the aerotropolis, in Hong Kong; an automated air-cargo facility at HKIA; the vast, parklike courtyard at Suvarnabhumi

Despite a fondness for Olympian pronouncements, Kasarda is neither a Le Corbusier nor a Robert Moses (to name just two men who wanted to mold cityscapes in their own images). He sheepishly concedes that his visions of monstrous highways and multimodal cargo hubs would make Jane Jacobs—the late patron saint of human-scale cities—toss and turn in her grave. But Kasarda has moved beyond the comfy, retro dictates of the New Urbanists. He isn't concerned with "the way we live now" but with the naked realities of how we do business now.

Is the United States prepared for those realities? The closest thing to an aerotropolis in America today is Memphis International, home for 25 years to FedEx. Memphis has been the busiest cargo airport in the world now for 14 years running, a fact visitors learn before they've even left baggage claim. Ninety-four percent of that title is owed to FedEx, whose nightly "sort" is still one of the logistical wonders of the world: 200 planes descend in a swarm, disgorging more than a million packages and overnight letters that must pass through the interlaced conveyor belts and chutes of the "primary matrix" before being reloaded and shipped out.

Since its first sort in 1973, FedEx has become the largest private employer in a metropolitan area of close to 1 million people. The University of Memphis concluded in a study two years ago that the airport (and essentially FedEx) was directly and indirectly responsible for more than $20 billion in annual output and for 166,000 jobs—one of every four in the region. Only 30,000 or so of those are on FedEx's payroll; the rest have flourished within the ecosystem of warehouses, trucking firms, factories, and offices nestled within its footprint.

To calculate the value of setting up shop in Memphis, just compare its informal FedEx drop-off deadlines with your own: Midnight or even 1 a.m. versus 9 p.m. on the East Coast and as early as 4 p.m. out West. That's a lot of extra production. Jo Ferreira, FedEx's managing director of hub-area business development, routinely juggles the requests of as many as 40 to 50 companies jockeying for space around Memphis and smaller hubs like Indianapolis, Phoenix, and Oakland. "Proximity matters more and more to them," she says, and Memphis offers an ideal combination of inexpensive, semiskilled labor, acres of turnkey warehouse space, and the junction of three states all fighting for their business. "But the biggest driver," Ferreira says, "is the growing urge that when we want something, we want it now. And as soon as one company relocates here or to any of our hubs, the next thing that happens is that three or four of its competitors come calling."

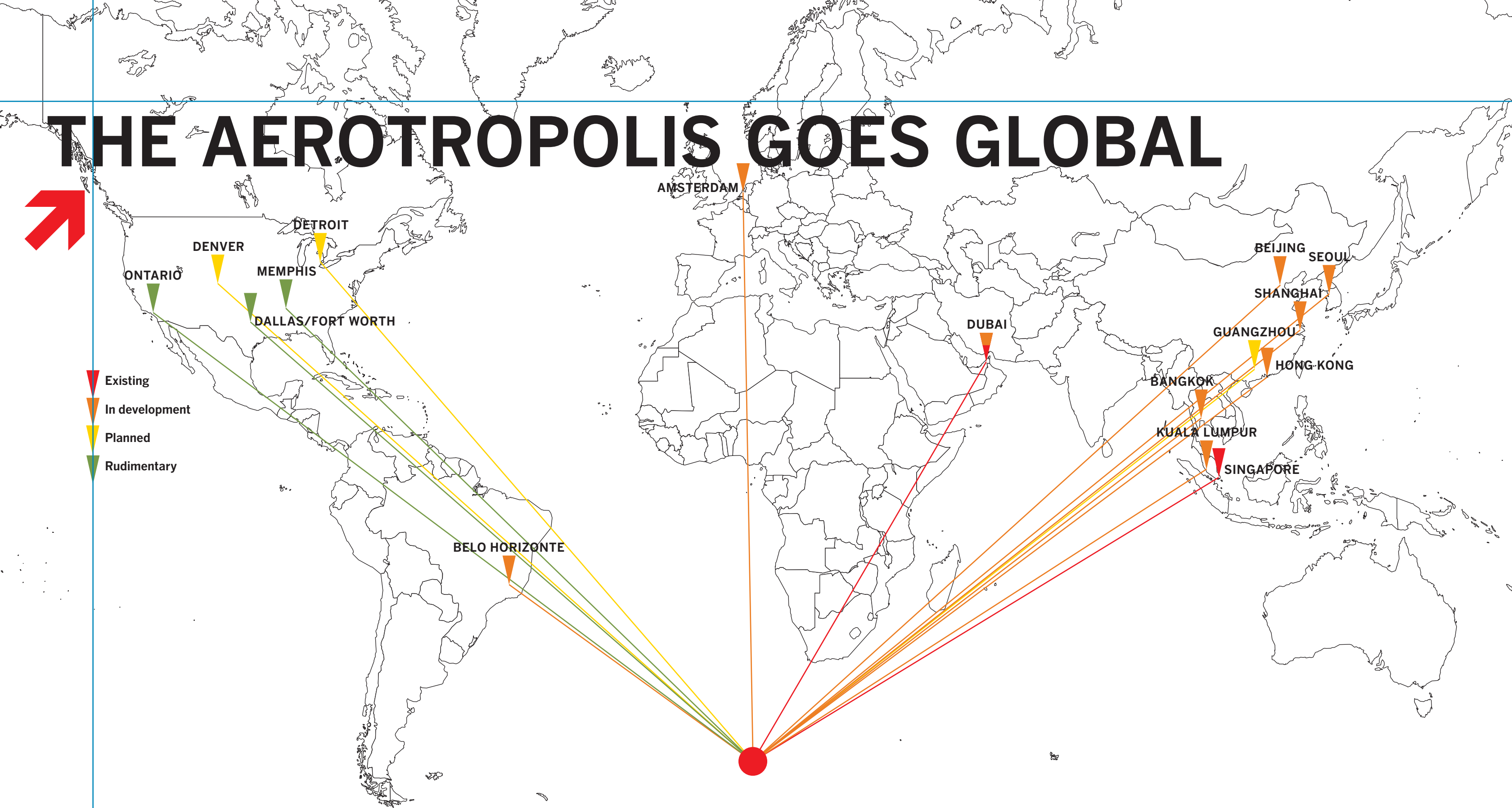
But while Memphis might qualify as a proto-aerotropolis—with the FedEx hub providing just enough gravity to keep its customers from spinning out of orbit into Mississippi or Arkansas—few other American cities are even remotely ready to build their own analogues. The zoning is too haphazard, the NIMBY-ism too rampant, the love of the strip mall and ranch house too profound. In other words, there's a reason Kasarda could get his vision built in Bangkok but not Atlanta. And that could be dangerous in the long run: "Individual companies don't compete," he says. "Supply chains compete. Networks and systems compete." People forget that FedEx started in Little Rock, Arkansas, but the airport there couldn't keep up—so FedEx founder Fred Smith looked around until he found one that could.

Kasarda is fond of quoting the biologist Sir D'Arcy Wentworth Thompson's insight that growth creates form, but form limits growth. The challenge facing our airports today is the same confronting any company that has at last bumped up against the limits of its growth and is contemplating some creative destruction. Much like Microsoft and its dilemma about what to do with Windows, our airports are the operating system underlying a network that endlessly crisscrosses the globe. And like the software giant, they are bound to maintain backward compatibility with everything that has come to flourish around them. But whereas Microsoft only has to worry about its third-party developers, urban planners attempting to retrofit an aerotropolis will be forced to choose between optimization and saving people's homes. The consequences of each decision are equally stark: Either risk building competitive disadvantage into the very fabric of cities, or begin unwinding the fabric itself.

The Thais and other governments across the developing world play the part of Apple or Linux in this metaphor. Their willingness to break with the past in pursuit of something truly new stems largely from their having so little to protect. Indeed, the imposition of an aerotropolis may be one of the only remaining ways some developing countries can restore order to their collapsing urban grids, a process made considerably easier by the relatively weak civil rights of their citizens. In Dubai, for example, the emirate's ruler and "CEO," Sheikh Mohammed bin Rashid Al Maktoum, has been building an aerotropolis basically by fiat for at least the last decade. Essentially a finger of sand jutting into the Persian Gulf, Dubai is almost always approached from the air. It also happens to sit less than an eight-hour flight from half the world's population. The $33 billion Dubai World Central, probably the purest expression of the aerotropolis concept to date, will unwrap its first ring late next year—a logistics hub with more than three times the capacity of FedEx's in Memphis. Dubai Logistics City is to have its own access to the runways, a forest of warehouses and office space, "e-customs" processing for anyone operating within the zone, and enough on-site housing for 40,000 workers. Some 1.2 million square meters of factory and warehouse space will serve customers including Boeing, Caterpillar, Chanel, LVMH, Mitsubishi, Porsche, and Rolls-Royce. In the second ring, free-trade zones like Dubai Internet City are to host the regional outposts of titans such as IBM, Microsoft, and Oracle. And in the outermost ring, prepackaged burbs such as Dubai Festival City will warehouse 77,000 residents, who will pass their days in one of the world's largest malls, on a Four Seasons–maintained golf course, or working in one of the on-site office towers that offer, according to its promotional Web site, "a thriving, dynamic centerpoint situated just two kilometers from the emirate's award-winning international airport."

I paid a visit to Dubai in February and found little more than a few apartment buildings, an Ikea, and a six-lane highway leading to the airport a mile or so away. The man in charge of selling this city to its future inhabitants was an affable Canadian mall-developer named Phil McArthur. At the end of my tour—which included all 18 holes on the golf course and watching Pakistani laborers getting bused back into the desert—I grilled him about whether anyone would want to live in "hillside villas" built into the sides of sand dunes. "I already live here," he said, shrugging.

THE AEROTROPOLIS GOES GLOBAL



"But then again, I know what's coming, and when, so that makes me a little different from everyone else."

A CURE FOR WHAT AILS US?

>> **JOHN KASARDA OBVIOUSLY SEES** the aerotropolis as key to America's competitive agility, and a critical one at that. Implicit in his thinking is a coming world of exponential population increase and cutthroat competition for resources and profits. His vision may evoke everything Americans find terrifying about globalization—a civilization cast in quick-drying cement, packed with worker drones—but if you grant Kasarda's seemingly implacable logic, you have to ask: How willing or able are we to adapt? Ours is a country, after all, that allowed Denver's Stapleton to be abandoned outright after encroaching suburbs cut off its oxygen supply. Compare that with Suvarnabhumi, slated to become a self-contained province governed by the prime minister himself, and it's clear our squeamishness about dictating how and where our cities grow could ultimately come back to haunt us.

Nearly a decade ago, Kasarda met with World Bank officials in Bangkok to convince them of the broad social benefits an aerotropolis would bring. His sales pitch was ingenious: By helping to connect the city and the surrounding countryside to the rest of the world, Thailand would actually be furthering its own, seemingly unrelated goals for the region. It would improve the lot of women (by bringing in manufacturing jobs), help farmers and fishermen sell their orchids and tiger prawns overseas (by connecting them to foreign markets), and stem the flood of farmers into overcrowded cities such as Bangkok (by creating a new population center with a tremendous hunger for labor). Kasarda's plea got nowhere at the time, but his thinking eventually won the Thais over.

In January, Kasarda made a similar pitch to another hard-bitten city: Detroit. He had been asked to make his usual stump speech for a group of 60 or so University of Michigan architecture students who were about to undergo an annual urban-planning exercise known as a "charrette." Held every year by the dean of Michigan's architecture school, each charrette contemplates a different aspect of Detroit's ongoing attempt at urban renewal—which makes for plenty of ground to cover.

This year's installment opened with the possibility of a Detroit aerotropolis as its premise. Nearly unique among major U.S. cities, Detroit has 25,000 acres of woods and open fields surrounding its main airport, a hub for Northwest Airlines. Just seven miles to the west—a straight shot along I-94—is a second, smaller airport, Willow Run, which caters to the chartered cargo and corporate jets of the Big Three automakers and their assorted suppliers. If one were to link the airfields with the highway, and with mass transit stretching to downtown Detroit, the spine for an aerotropolis would be in place.

Upon emerging three days later, three student teams presented master plans that offered everything from full-fledged logistics hubs around Willow Run to a grand boulevard running through a greenbelt of mixed-use neighborhoods and office parks designed in the high style of Silicon Valley. The aerotropolis, they concluded, could stem the massive brain drain from local universities and the entire region. It could anchor a new city, with 100,000 new residents, in Wayne County's western suburbs. Kasarda was ecstatic: "This could turn around all of southeastern Michigan!" And his hosts became his newest converts.

Three months later, Mulu Birru, Wayne County's economic development guru, presented a "best of" compilation of the students' designs to his boss, Wayne County executive Robert Ficano, along with a "nonbinding memorandum of understanding" for building the aerotropolis—a plea to the governor to

Two Emiratis watch a dance show in front of a model of Logistics City, just one component of the coming Dubai World Central.

On completion, the $33 billion Dubai World Central will be **the size of O'Hare and Heathrow combined,** with **three times the cargo capacity** of the FedEx hub in Memphis. Located **25 miles south of downtown Dubai, DWC will house 750,000,** making it almost **as large as Stockholm.**

grant them the cash and the planning powers necessary to bring Detroit and adjoining communities to the table. Birru, who worked a minor miracle by helping to turn Pittsburgh around, sees a Detroit aerotropolis as a haven for "green" architecture and a magnet for auto suppliers, biotech firms, ethanol plants, and just about any other technology-intensive business you can think of. In fact, auto-parts outfits such as Visteon, Magna, and the Chinese entrant Century Automotive have either built or are eyeing new campuses in the aerotropolis zone. (Many auto components today are lightweight and digital, and thus easily shipped by air.)

After our meeting, Birru's deputy and I drive off for another aerotropolis-site inspection, wending our way through the parking lot of Visteon Village, home to some 3,000 auto-parts workers and nearly as self-contained as the 19th-century New England mill town it resembles. We take the back roads to the future grounds of the Pinnacle Aeropark, a parcel of open land just south of Detroit's airport that will serve as a prototype for the aerotropolis when ground is broken next year.

At one point, we pull over next to a field of dandelions less than a mile from the runways. These thousand acres are set to become the Entertainment Center, a Magna-supported vision that could have been a leftover sketch from Suvarnabhumi. Hotels, a casino, a performing-arts center, retail, and even a horse-racing track (Magna's entertainment division happens to own Pimlico) would all sit here, cheek by jowl.

When you stand there, the airport peeking out from behind the overpass suddenly seems an optimistic symbol. It makes as much sense—and probably more—for the people of Detroit to orbit a new global portal as it does for them to cling to some frayed and decrepit version of Jane Jacobs's ideal. It's an opportunity for the city to start fresh, to recast itself in our networked economy's own image. It's a chance that Detroit, of all places, can ill afford to miss. The rest of us had better take good notes. FC

Greg Lindsay is an editor-at-large at Advertising Age. *His work has appeared in* I.D., Fortune, *and elsewhere.*

Photograph: Corbis