The Big Idea

There's a vast opportunity for the private sector in making cities efficient and competitive.

by John D. Macomber

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By 2050 the number of people living in cities will have nearly doubled, from 3.6 billion in 2011 to more than 6 billion. Yet the world's urban areas are already overcrowded and, particularly in developing countries, suffer from shortages of clean water, electricity, and other resources essential to the support of their exploding populations and fragile economies.

The problems created by rampant urbanization are among the most important challenges of our time. They also represent one of the greatest opportunities—and responsibilities—for the private sector. Business is uniquely positioned to shape the sustainable, economically competitive cities of the future.

Many corporations and investors assume that fixing cities is the purview of government, and that government will act. But governments around the world are stuck—financially, politically, or both. They can't be relied on to single-handedly address the problems of urbanization or to conceive solutions, such as efficient electrification and reliable public transit, that will drive economic growth. Implementing those solutions requires large amounts of capital, exceptional managerial skill, and significant alignment of interests—all of which are often in short supply in city governments but abound in the private sector.

In my research and in consulting engagements with municipal governments, urban planners, corporations, and entrepreneurs in the United States, Europe, Latin America, and Asia, I have seen many different business strategies for addressing the challenges posed by rapid urbanization and scarce resources. Often they center on expanding supply—providing more water, more electricity, more roads, more vehicles. But increasingly businesses are discovering how to create and claim value by improving resource efficiency—through energy-performance contracting, for example, and other strategies that overcome business barriers, reduce waste, and stretch resources. This article provides a framework for identifying and pursuing such opportunities.

The framework rests on three pillars: new business models that generate profits by optimizing the use of resources; financial engineering that encourages investments in efficiency (see the sidebar "What Is Financial Engineering?"); and careful selection of markets. Although any given company's approach will depend on its capabilities and objectives and the market it is entering, the broad strategies provided here are relevant both to obvious players such as infrastructure companies and vendors of turbines, trains, and other equipment, and to companies in larger sectors such as information technology, financial services, and building products. Whatever the industry, strategic investments in resource efficiency as cities are being built or rebuilt can generate value for companies over the long term while enhancing the cities' competitiveness, livability, and environmental performance.

A company or an investor could target an array of resource-management initiatives. Of these, I argue, water, electricity, and transit projects deserve the greatest focus. Businesses that have water to process food and materials, whose lights and comput-

ILLUSTRATION: CHRIS LABROOY

Idea in Brief

THE PROBLEM

Over the next 40 years the number of people living in cities will nearly double, to 6 billion. Yet even today many cities lack sufficient clean water, electricity, reliable public transit, and other basic resources needed to support their exploding populations and strengthen their economies.

THE ARGUMENT

Governments don't have the political will, money, or managerial skill to solve this problem on their own. A vast opportunity exists for the private sector to provide products and services that make the most efficient use of resources.

THE SOLUTION

These products and services—such as water desalination and incentive programs to smooth spikes in electricity demand—combine sophisticated technology with financial engineering that attracts capital by aligning the interests of many parties and offering investors a spectrum of risk and reward.

ers are reliably powered, and whose goods can get to market and employees can get to work quickly and efficiently are clearly at an advantage. Similarly, citizens with ready access to clean water, whose children have light by which to read and study, and who can commute efficiently and affordably have a foundation on which to thrive. All the other services a competitive city provides—functional housing, schools, hospitals, stores, police and fire departments, heating, cooling, waste management, and so on—depend on a reliable water, electricity, and transit infrastructure.

The Efficiency Opportunity

To understand where the opportunity lies, consider how resource-efficiency initiatives measure up on both technological and financial sophistication. The products and services that new cities will require, and that provide the return investors and entrepreneurs need, optimize both. A company's offerings can be positioned according to these characteristics on an "efficiency matrix" like the one at right. Technological sophistication increases from left to right, while financial sophistication increases from bottom to top. Low-tech commodity solutions, such as the purchase of insulation in a simple transaction between buyer and seller, would inhabit the bottom left quadrant; sophisticated programs such as demand-response optimization in electricity would inhabit the top right.

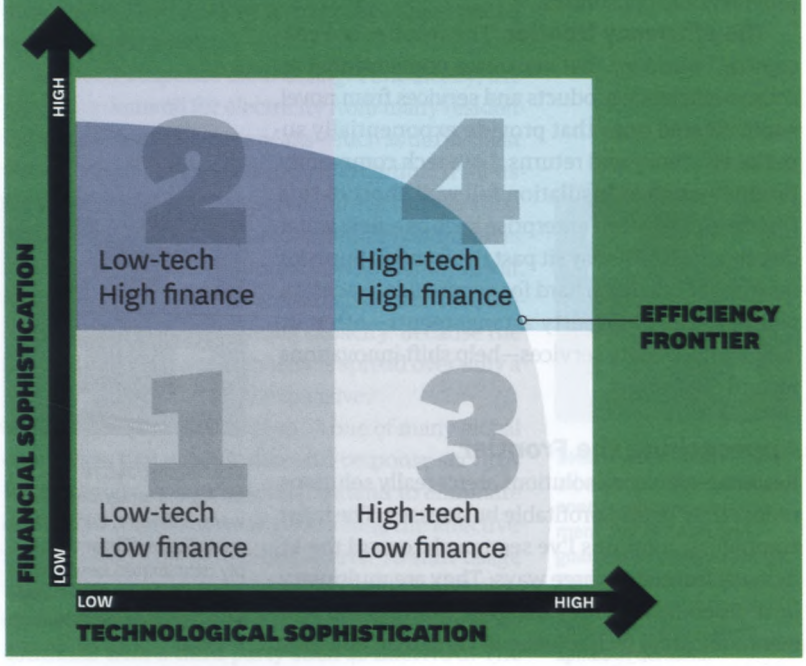
The matrix is useful for determining the current strategic position of a company's products, services, and investments, but it's most valuable for envisioning where the company might profitably head. New value can be created and captured by moving either horizontally or vertically within any quadrant. However, companies that shift their business models and offerings into the upper right quadrant stand to gain the most—and will also have the greatest impact on the resource needs of the world's burgeoning cities. Often that means playing the role of coordinator or figuring out how to finance a service—something the individual players cannot do on their own. It is in that quadrant that a company's offerings are more differentiated, favor multiparty solutions, and are likeliest to create value for all the participants.

Before considering leading companies that are making this shift, let's look at each quadrant.

Quadrant 1. Most companies that sell resource-efficiency products and services compete here with

The Efficiency Matrix

A company's resource-efficiency products and services can be plotted according to how sophisticated they are financially and technologically. As sophistication increases, offerings approach the efficiency frontier at the perimeter of the matrix.



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relatively simple commodity offerings such as water-saving fixtures and energy-efficient lighting. The markets in this quadrant are large, and companies know how to operate within them. However, offerings show little differentiation, and while sales volumes can be high, margins are low. Products sold here tend to have a fairly small impact on cities' long-term sustainability and competitiveness.

Quadrant 2. Companies that engage in basic public infrastructure and services projects, such as road and electric grid construction and mass transit, often operate here. Projects in this quadrant may entail sophisticated financing that divides investment risks and rewards among parties and can attract more capital than governments are typically able to raise on their own.

Quadrant 3. Industrial product and technology companies often operate in this quadrant with offerings such as air-conditioning, pumps, and network routers that compete on improved performance. These enhanced technologies can help stretch resources, but they are typically provided in onetime sales to individual users.

Quadrant 4. Companies operating here combine sophisticated technologies with new financial models to scale resource-efficiency offerings and generate substantial savings or profits, often for multiple parties. They frequently act as aggregators of information that allows them to coordinate the efficient delivery and use of resources among many providers and consumers.

The efficiency frontier. The frontier is a conceptual boundary that separates conventional resource-efficiency products and services from novel, sophisticated ones that provide exponentially superior efficiency and returns. Low-tech commodity products such as insulation fall well short of this frontier; a high-tech enterprise such as a new water desalination plant may sit past the frontier. Superior resource efficiency is hard for companies to achieve acting alone; multiparty arrangements—often involving third-party services—help shift innovations toward the frontier.

Approaching the Frontier

Resource-efficiency solutions aren't really solutions unless they're also profitable businesses. The most compelling solutions I've seen push toward the efficiency frontier in three ways: They are multiparty or multicompany; they leverage information and communication technologies in particular; and they entice capital by offering participants various levels of risk and reward over various terms. Here are some solutions in the three areas most deserving of focus.

WATER Clean water is in increasingly short supply around the world. Nearly half the global population lives in areas where water is scarce or the infrastructure needed to collect, purify, and distribute it is lacking. According to the Water Resources Group, if present trends continue, by 2030 demand will exceed the current accessible, reliable supply by 40%.

In India, where 150 million people live beyond the reach of the existing potable-water infrastructure, Sarvajal, a small Gujarat-based business, combines old and new technologies and financial engineering to efficiently provide clean water. UV purification and reverse-osmosis filtration units are at the heart of the Sarvajal system, but the company couples these conventional technologies with cloud-based remote monitoring that provides system-performance data in real time and vending machines that deliver water with the swipe of a prepaid card. Individuals can buy water at these "water ATMs," and Sarvajal also supplies hospitals and other institutions in urban settlements through "water microgrids."

The company depends on a franchise model, working with entrepreneurs to whom it provides training, filtration equipment, and other resources. This form of financial engineering brings in substantially more capital for R&D and for operations than any of the entrepreneurs could have acquired themselves. To date some 150 franchisees have sold more than 200 million liters of clean drinking water throughout six states.

Sarvajal applies an efficient resource-distribution solution to address an unsatisfied need, saving both governments and individuals money (buying through its water ATMs is less expensive than purifying water at home) and eliminating the waste that results from individual filtration or large-scale distribution through pipes. The company has shifted from a status quo quadrant 1 approach to a high-tech, financially engineered quadrant 4 solution for supplying rural and urban off-the-grid water.

On a much larger scale, General Electric, too, provides quadrant 4 solutions. In addition to equipment such as pumps and filters, GE Intelligent Platforms

WATER PROJECTS
GE Algiers integrates hardware, software, and data analytics to efficiently supply desalinated seawater. Sarvajal's franchised "water ATMs" provide clean water in India.

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What Is Financial Engineering?

In mathematical science the term "financial engineering" describes the use of algorithms to create trading strategies. But in this article I use it to refer to a general set of financing and capital structure strategies for companies and projects. In a low-financial-engineering road project, for example, a government would collect taxes to pay for the construction all at once out of current funds. High financial engineering for a privately funded highway might include short-term debt; long-term senior bonds; long-term junior bonds; interest rate swaps; contributions of land in exchange for bonds, debt instruments, or stock; vendor financing for future considerations; and equity in the promoter, the operator, and the engineering firm. This approach is designed to attract more capital to the project by offering different levels of risk and return, different cash-flow priorities, and opportunities for both short-term and long-term investors. When governments are "stuck" and can't deliver core infrastructure, these techniques are particularly useful. Otherwise it can be hard to match the cost of the initial resource-efficiency investment with the extensive and very widely distributed benefits that are realized in the long run.

sells services that collect and analyze data from water-infrastructure components. In the past, equipment operators had little information about how a system's components interacted. A lack of visibility into patterns of demand, inventories in reservoirs or tanks, and performance issues such as pump efficiency and leaks meant that water extraction, treatment, and delivery were inefficient.

In 2008 the city of Algiers was suffering a dire water shortage owing to a rapid influx of people from the countryside. The city entered into a 25-year contract with GE and partners to finance, construct, own, and operate a seawater desalination plant. The plant, which tightly integrates hardware, software, and data analytics to minimize downtime and waste, can produce 200,000 cubic meters (53 million gallons) of freshwater a day.

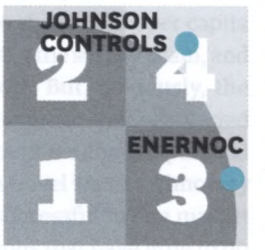
The agreement involved an innovative public-private partnership ("GE Algiers") in which 70% of the funding was provided by GE Capital and the remainder by the Algerian Energy Company. This financial commitment underpinned a crucial $200 million senior loan to the project from OPIC (the U.S. government's Overseas Private Investment Corporation).

Initiatives like this—which combine physical equipment, information and analytics, and financial engineering—can help large utilities move from merely pumping water to understanding and coordinating water demand and efficient supply: same water, smarter pumping, less leakage—and more-accurate metering and billing. These improvements, so hard to implement without the information and communications technology to connect distributed equipment, lead to more efficient use of the same scarce resource.

ELECTRICITY There are many ways to get more work from the same amount of electricity and infrastructure. Consider this typical situation: A utility company builds generating capacity to meet anticipated peak demand; it sends power to a leaky grid; and users consume indiscriminately. Among the consequences are disruptive brownouts and blackouts, wasteful idle capacity, and suboptimal investment by businesses and homeowners alike in capital improvements such as insulation, low-energy lighting, and high-efficiency air-conditioning equipment. In the worst case, inefficient, fragile, and overtaxed electrical systems can fail catastrophically, as happened in India in the summer of 2012, when more than half a billion people lost power. Two strategies—demand-response contracting and energy-performance contracting—combine technology and financial engineering to reduce waste. Both work by sharing the value created through lower costs.

Demand-response contracting. Periodically, the aggregate demand for electricity from many residential and commercial users peaks—such as during heat waves, when air-conditioning use climbs. If all users continue to run their server farms, refrigeration units, smelters, electric motors, and air conditioners at the same time, blackouts or brownouts may result. Over the long term these occasional spikes force utilities to build more generating capacity. Because the capital cost of the new capacity is spread over only a few days, it's exorbitantly expensive.

EnerNOC, based in Boston, is one of many global companies that provide demand-response services for electricity, smoothing out demand to eliminate disruptive spikes and vastly stretching the effectiveness of electricity-generating assets. To shift usage away from the peaks—and reduce costs for all players—utilities get customers to sign demand-response contracts with a third party such as EnerNOC. The



ENERGY SERVICES
Johnson Controls provides energy-efficiency equipment and services and guarantees energy savings. EnerNOC coordinates electricity production and consumption to reduce spikes in demand.

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Reducing Demand: A Huge Opportunity

Addressing resource scarcity involves either government action or private-sector action and either increasing supply or reducing demand.

A government might be expected to increase supply by, for example, building more water plants or transmission lines, or to reduce demand by levying a carbon tax or legislating fuel-efficiency standards. Solutions like this look good on paper (and generate lively policy discussions) but often get mired because they require that all the political actors agree with the intervention—which they rarely do—and that governments have readily available funds for investment, which they often don't.

The private sector, meanwhile, reflexively skews toward increasing supply, with uneven results. Consider electricity: A raft of alternative technologies, including photovoltaics, wind turbines, and biofuels from algae, are expected to help feed the world's growing demand. These garner much attention from engineers, academics, and the press, but they are expensive and hard to scale, and most of them rely on subsidies to be cost-competitive. The billions of people migrating into emerging-market cities are not going to power their new refrigerators with electricity from algae and wind turbines.

That leaves a huge opportunity for the private sector to develop, sell, and invest in products, services, and strategies that effectively reduce demand by making cities' use of resources more efficient. Sometimes these are unexciting products in traditional applications such as improved insulation, low-flow toilets, and smart thermostats. They are business as usual. More value can be created and captured—and very large markets opened up—by new business models and financial structures that reward new efficiencies.

customers receive regular payments for doing so. In a "demand event" such as a blast of hot weather, they get a demand notice and are required to respond by reducing their electricity use. They might shut down a line of electric welders for an hour, take a few servers off-line, turn off certain lights in an office building, or turn down the air-conditioning for a few hours. This reduces brownouts, saves utilities the cost of building new capacity, and produces a stream of revenue (the commitment payments) for customers. Utilities or customers would find this hard to do on their own, because coordinating all the parties requires sophisticated technology—complex sensors, monitoring, and communications IT—as well as specific managerial and technical expertise. The demand-response service provider takes a fee from the utility for making it all work. According to Navigant Consulting's research division, global revenue for demand-response services will top $6 billion by 2016—up from $1.3 billion in 2011—with a CAGR above 30%.

Energy-performance contracting. Simply put, companies that sell energy-performance contracts (EPCs) guarantee clients a certain level of energy savings. They do this by providing heavy energy users, such as companies and municipalities, with energy-management assessments, information technology, and consulting, and often pay the up-front cost for major equipment. Their combination of technology and financial engineering places them in quadrant 4 of the efficiency matrix.

A typical EPC process begins with an assessment of ways to enhance energy efficiency. This might include identifying inefficiencies in the heating and cooling systems of administrative buildings, schools, and hospitals and the powering of a city's water utilities, subways and buses, and street and traffic lights. The EPC provider then recommends improvements, estimates the costs and the expected savings for each, and suggests financing options. Customers choose which improvements to pursue and pay the EPC provider, which guarantees a level of savings and executes the project. The project generates a pool of savings, a portion of which the provider claims. If the savings fall short, the provider makes up the difference.

The global energy-technology firm Johnson Controls has implemented thousands of performance contracts worldwide. Like other companies that supply EPC services, Johnson has more energy engineering expertise and knowledge of vendors and products than the businesses and governments on the other side of its agreements. Its knowledge and market power help it command a margin even when the net consumption of energy declines.

In Thailand, for example, Johnson Controls worked under an EPC contract for the International School Bangkok. The company arranged for financing, installed high-efficiency air-conditioning units and lighting, and guaranteed certain energy savings. Its guarantee helped the project attract additional debt financing, including participation by an

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energy-efficiency fund. The school saved more than $120,000 a year in electricity charges and reduced its annual carbon emissions by 700 metric tons—all at no cost to itself.

TRANSIT Packing an ever-growing number of cars into cities is the most wasteful and least sustainable way to move people. And yet the global production of passenger cars has climbed more than 50% over the past decade, from 41 million in 2002 to 63 million in 2012.

The world's new and "legacy" cities must emphasize efficient public transportation rather than convenience for cars. The best transportation solutions will exist in quadrant 4 of the matrix, optimizing results through sophisticated technology and financial engineering and the coordination of parties.

EMBARQ–The WRI Center for Sustainable Transport, an NGO supported by Shell, Caterpillar, FedEx, and Bloomberg Philanthropies and based in Washington, DC, is tackling this challenge by organizing city transit services in countries around the world, including Mexico, Brazil, Turkey, India, and China. Consider the EMBARQ-led transformation of the BRT (bus rapid transit) system in Mexico City. Before the initiative, the city's bus service was uncoordinated. Individual owners drove old school buses on unmarked, irregular routes. To maximize their income, they would drive as fast as they could, ignore traffic signals, dart in front of competing buses to pick up fares, and do as little maintenance as possible on their vehicles. The unsafe system worsened already chaotic traffic, wasted fuel, and squandered people's time.

EMBARQ coordinated the interests of government and private businesses by arranging for the old buses to be bought and scrapped and new, articulated buses to be purchased. Drivers were hired to follow scheduled, marked routes for set fares. New vehicle tracking and monitoring applications streamlined dispatching, loading, and fare collection.

The combination of multiparty coordination and communication technologies for collaboration was difficult but transformational. None of the parties could have revamped the bus system on its own. The bus operators could not have independently financed new buses, and the city had not been able to establish a competing system. The EMBARQ solution brought consolidated revenue collection, consistent cash flow, expanded routes, and previously lacking private financing. Furthermore, it offered a widening ripple of economic benefits to businesses and employers along the new routes and to related vendors, including bus manufacturers, aftermarket suppliers, and information and communications technology businesses.

The shift of Mexico City's bus system from a quadrant 1 to a quadrant 4 model was spurred not by government but by an NGO responding to government's inability to create an efficient solution. The funds and the benefits came from and primarily accrued to many private-sector businesses. The city's improved sustainability and enhanced competitiveness came from using fixed and consumable assets—vehicles, fuel, and time—more effectively and creating resource efficiency where there had been none.

TRANSIT SOLUTIONS
EMBARQ coordinates the interests of government and business to organize city transit services, saving fuel, time, and money.

Organizing Unsettled Markets

How can companies put these strategies into practice? Some organizations with resource-efficiency offerings follow a diversification approach, locating sales offices around the world and hoping that some of those placed in emerging markets will succeed. Others work in only a handful of cities where they are familiar with the market and risks are relatively low. Neither approach is well suited to new and fast-growing emerging-market cities. This section describes how to match a company's capabilities with tactics that are effective in such unpredictable environments.

High demand for clean water, electricity, and transit solutions is certain in any growing emerging-market city. Many of the natural criteria for segmenting markets that apply in developed-economy and legacy cities apply in new cities, too—characteristics such as population size and growth, per capita income, maturity of the rest of the supply chain, and the presence of competitors. But, obviously, the circumstances in these cities are immensely varied and particular to their sometimes chaotic political and economic situations. A novel water technology or business model that is successful in one market may fail in another for reasons that have little to do with demand and much to do with the characteristics of the market and the entrant's resources and capabilities.

In entering these markets, it's critical to consider where the city falls on a spectrum from "settled" to "unsettled." Getting this assessment wrong can hobble an otherwise carefully designed strategy. Settled

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markets are characterized by political stability, effective capital markets, fair and efficient courts, the protection of property rights, and reliable electricity, water, and public transit. These environments encourage densely placed high-rises and solutions that coordinate many business participants. Even in developed economies, not all markets are settled, but settled markets are observably rare in the emerging economies. Unsettled markets are less politically stable, their public services are unreliable, contracts are hard to enforce in them, and so on. Poorly regulated low-rise urban sprawl is the norm. Cities such as Rio de Janeiro, Lagos, Karachi, Dhaka, and Jakarta are prime examples.

Strategies to organize even small components of this chaos have the potential to create and capture more long-term value than do settled-market approaches, because the demand for resource solutions in unsettled markets is very high and competition is low. The effective use of resources here can wring waste out of the system, helping governments, businesses, and citizens increase productivity, to the economic benefit of all. Companies that provide solutions and build trust where governments have failed can realize first-mover advantages, including a defensible foothold for their brands, strong business and political ties, and platforms from which to scale up.

A company's chances of success in an unsettled market are increased by having—or acquiring—specific capabilities:

- *coordination skills,* including IT and project expertise, to orchestrate the interaction of multiple stakeholders
- *political savvy,* to gain the trust and respect of all political players
- *financial depth,* to assemble complex financing and sustain projects in the face of delays
- *strong vendor and customer relationships,* to promote buy-in when risks are high
- *transparency and accountability,* to fend off fraud and protect the brand.

This "standard hygiene" list is particularly important for companies looking to maximize resource efficiency, because the profits are generated by reducing costs and creating value through collaboration. Two examples from Asia illustrate the impact of strategies for unsettled markets.

Leveraging financial capability. Consider how financial engineering and financial clout can help bring order—and opportunity—to an unsettled environment. The ability to create custom dedicated markets and exchanges for goods and services among the participants in a supply chain, to enforce agreements through financial leverage, and to introduce capital where it's lacking can have a stabilizing impact by, in effect, creating settled markets.

The China-Singapore Suzhou Industrial Park, a large township in Jiangsu Province, was enabled in this way. In the early 1980s the government of China sought to attract foreign expertise and capital to help develop an industrial and residential center near Shanghai. The sovereign wealth fund of Singapore agreed to contribute its capital and planning skills—but only if the project would follow Singapore's well-known rules with respect to transparency, accountability, and contracts. This encouraged other foreign investors by reassuring them that their capital would be safe during the early (and unsettled) years of Deng Xiaoping's market reforms. By building centralized water and electricity infrastructure at the outset, city engineers dramatically improved efficiency relative to the common "low first cost" alternative, in which companies dig their own wells for water and run their own diesel generators for power. As a result of these organizing financial influences, the park became one of the most economically successful large-scale development projects in the world.

Leveraging technology strengths. Many cities in emerging economies have some level of department-specific sensors, software, or communication capabilities to provide a window on water, energy use, and traffic. Most commercial buildings in those cities have independent and uncoordinated

Companies that provide solutions and build trust where governments have failed can realize first-mover advantages, including a defensible foothold for their brands.

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Two Approaches to Development

In the past, urban areas grew slowly, usually near trade routes, rivers, or ports. Today, cities spring up with astonishing speed—sometimes willy-nilly, sometimes carefully planned. Gurgaon, in India, and Phu My Hung, in Vietnam, provide a stark contrast.

GURGAON was largely promoted by speculative real estate developers, with little attention to master planning and little investment in roads, water, and electricity. Its landscape is a mishmash of spectacular office buildings, large vacant areas populated by stray cows and goats, decrepit low-rise buildings, and slums.

PHU MY HUNG (Saigon South) was promoted by industrialists who took a long-term approach and had an infrastructure-first master plan. The city is clean and green and orderly; its real estate values are among the highest in emerging Asia; and its parks and waterways are weekend destinations for people from surrounding towns.

energy plans. But few cities bring them all together to get a single clear view.

This is where global information and communications technology companies can help cities improve resource efficiency. They can move beyond selling servers and network devices to individual companies and into strategies to help stabilize unsettled markets and extend resource productivity while doing so. In Rio de Janeiro, for example, IBM designed and coordinated the installation of a massive citywide system involving numerous local vendors and integrating data from about 30 city agencies, including water, fire protection, and transit. The city uses the operations center to improve efficiency and explicitly to attract investment. In a city with multiple weather and seismic threats and an array of independent providers of transit and other services, the ability to coordinate activities from one place saves money and stretches resources for everyone.

In South Korea's new city Songdo, "smart and connected" solutions from Cisco Systems go a step further. Cisco's network technologies manage energy use in every commercial building by optimizing LED lighting schedules, allocating water-cooled air-conditioning capacity, and redeploying heat and steam from cogeneration facilities—which would otherwise be lost—into the buildings' hot water and steam power systems.

A Tale of Two Cities

For centuries, urban settlements evolved slowly, usually near trade routes, rivers, and ports. Their various components—hard infrastructure such as buildings, roads, bridges, water, and power, and soft infrastructure such as governance, policing, schools, and health care—developed in parallel and at the considered pace of their agrarian or industrial societies. But that era is over. Now, as billions of people abandon subsistence farming for cities of the information age, the unprecedented scale and pace of urban development make it essential for the private sector to drive the coordinated creation and expansion of new cities.

Consider Gurgaon, near Delhi in India, an example of how unplanned, headlong urban development can play out, and Phu My Hung, near Ho Chi Minh City in Vietnam, which showcases the outcome of deliberate and coordinated development. These cities are comparable in size (about 20,000 acres) and population. Both have grown from scratch over the

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Global information and communications technology companies can move into strategies to help stabilize unsettled markets and extend resource productivity.

course of two decades; each now accommodates roughly 1.5 million residents. This is the trajectory that hundreds of other cities will take over the next 30 years, as the world's urban population expands.

Gurgaon was largely promoted by speculative real estate developers, with little attention to master planning and little investment in roads, water, and electricity. As a result, its landscape today is a mishmash of spectacular office buildings, large vacant areas populated by stray cows and goats, decrepit low-rise buildings, and slums. Major users draw water from the ground through individual wells. Traffic jams and smog are legendary; power is so sketchy that virtually every commercial building regularly relies on costly and polluting diesel generators; and the water table is receding by up to one meter a year. The developers got their capital back quickly, but the long-term prospects are grim: Traffic, power, water, and pollution problems seem intractable. It's very difficult to install roads and water infrastructure after the fact. This is business as usual at the city scale, with no particular financial engineering plan and no use of technology to extend resources.

Phu My Hung (also known as Saigon South) was promoted by industrialists who took a long-term "build and hold" approach and had an infrastructure-first master plan that included a privately financed and operated electrical generation plant, which powers much of Ho Chi Minh City and all the activity within Phu My Hung. In addition, the district depends on central water extraction, purification, distribution, and wastewater treatment and a central highway that was designed to allow mass transit to grow with the district. The developers had a nation-building agenda and a long-term orientation toward creating value. Robust financial engineering included investor and tax incentives. A number of independent projects in the city were financed in part by outside debt and equity investors with varying risk profiles. Enabling technology coordinates the electricity, water, transit, IT network, and communication systems to stretch resources. Today the city is clean and green and orderly; its real estate values are among the highest in emerging Asia; and its parks and waterways are weekend destinations for people from surrounding towns.

It is difficult to imagine the next urban billion living in 500 or more new cities built on the Gurgaon model. The model of Phu My Hung, where thoughtful, long-term-oriented, private-sector actors help the world create efficient water, power, and transit solutions, can—and must—be replicated. The necessary demand, capital, and technologies exist. What's now required is farsighted investors and businesses to organize the players.

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"We were able to cut our marketing budget in half by just guessing."

CARTOON: BOB VOJTKO

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Fonte: Harvard Business Review, Boston, v. 91, n. 7/8, p.40-50 , July-Aug. 2013.