

Cities of the Future

Indian PM pushes plan for 100 'Smart Cities'

By Casey Tolan, for CNN

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A rendering of the planned 'smart city' Dholera, in southern Gujarat, India. Prime Minister Narendra Modi has pledged to build 100 smart cities across the country.

STORY HIGHLIGHTS

- Indian Prime Minister Narendra Modi wants to build 100 "smart cities" outfitted with high-tech communication
- The government announced it's investing \$1.2 billion over the next year, with more funding coming from private investors and abroad
- Some observers are skeptical that high-tech cities are the best course in a country where many lack basic infrastructure
- India isn't the only country jumping on the smart cities bandwagon. China is investing \$8 billion in its effort

(CNN) -- In an ambitious plan to upgrade urban India, Prime Minister Narendra Modi says he will build 100 "smart cities" -- cities outfitted with high-tech communication capabilities -- across the country.

For Modi, who took office in May, building new cities is a way to deal with the country's rapidly urbanizing population while also competing with China, which has made smart cities a centerpiece of its own policies.

Last week, Modi's government announced a \$1.2 billion investment in smart cities over the next year, with more funding coming from private investors and abroad.

Whether the proposal will be an empty slogan or the biggest city-building project in Indian history remains to be seen. Some doubt that India, where many people live without basic infrastructure, should be focused on sci-fi-esque designs.

But several smart city projects are already in the works, including in the state of Gujarat, where Modi's record as chief minister suggests a focus on the country's urban middle class.

"We can already anticipate the problems that these cities face and attack them at the source," said Rahul Sharma, an executive at IBM, which sees smart city technology as a major new market. "India has a fantastic opportunity where we can work outside of the shackles of existing technology."

India isn't the only country jumping on the smart cities bandwagon. New cities are popping up in countries like South Korea, the United Arab Emirates, and China, which announced an \$8 billion investment fund in smart city technology this year.

Help from abroad

Modi hasn't released specifics about when and where he would build 100 cities. That number would include old cities upgraded with high-tech infrastructure as well as brand new urban centers, Housing and Urban Development Minister Venkaiah Naidu [told The Economic Times](#).

A rendering of the planned Gujarat International Finance Tec-City, in Gujarat.

A number of new cities are already in the works, especially in the corridor between Delhi and Mumbai, India's political and business capitals. Planners envision a high-tech industrial zone anchored by a major freight line and spanning six states.

Many of the planned cities include Special Investment Regions or Special Economic Zones, which relax regulations, reduce taxes, and generally make it easier for foreign companies to invest.



File: Singapore's Minister for Foreign Affairs, K. Shanmugam, speaks to the media during his visit to Gujarat, India on May 10, 2012.

Much of the funding for smart cities will likely come from private developers and from abroad. The \$100 billion Delhi-Mumbai corridor effort has a 26 percent [investment from](#)

Japan. When Singapore Foreign Minister K. Shanmugam visited India earlier this month, he [offered to build](#) one smart city. And during his own visit last week, British Chancellor George Osborne extended a 1 billion pound credit line to [help U.K. companies invest](#) in Indian infrastructure.

Advocates say now is the time to build

"India is urbanizing very fast and we need to expand the capacity of our cities," said Bimal Patel, an urban planning professor and the president of CEPT University, in Gujarat.

India's urban population is projected to grow from 340 million in 2008 to 590 million in 2030, according to a 2010 [McKinsey and Company study](#). The country will have to build the equivalent of one Mumbai of commercial and residential space every year to keep up, McKinsey estimated.

But some observers say building new high-tech cities could be a case of misplaced priorities.

"Having a stable roof over every head, public transportation running on every road, a toilet in every house -- I would say that is the smartest city ever," said Rutul Joshi, another CEPT planning professor. "We have to redefine what is smartness."

Cities of the future?

While his national policy is still in the works, Modi's record as chief minister of Gujarat state provides hints for how he would pursue urban development. In Gujarat, he aggressively promoted several new smart city projects and pushed an agenda focused on India's growing urban middle class.



"A lot of other cities in India are struggling with infrastructure projects," Joshi said. In Gujarati cities, "the government has actually delivered. What they haven't delivered as well on is the social infrastructure" -- supporting the poorest Indians.

[Gujarat International Finance Tec-City under construction on June 26, 2014.](#)



Modi's flagship smart city project is the [Gujarat International Finance Tec-City](#), a new city envisioned as Gujarat's Wall Street, just a few miles between the state's capital and its largest city.

Started after Modi visited Shanghai and designed by the firm behind some of China's flashiest buildings, the city's plans call for an 80-story "Diamond Tower" on an artificial island. Two 28-story towers have already been completed and are the tallest in the state.

The city will have solar panels, automated garbage collection, and water treatment and recycling plants. Commuters will receive text messages alerting them of traffic and guiding them through the city's streets.

The first phase of the city's construction is expected to be completed by next year, with the entire project to finish by 2020. While it was slow to attract tenants at first, more companies are moving in, attracted to reduced taxes and regulations in its Special Economic Zone. International banks, for example, can operate in the zone using foreign currencies, unlike elsewhere in India.

"The cost of operation will be much cheaper than any other place in India," the project's managing director, Ramakant Jha, said from New York, where he was meeting with companies about moving to the city. Even larger -- and farther back on the construction calendar -- is a massive 920-square-kilometer planned city in the south of the state.

Envisioned as a manufacturing hub, the city is expected to house two million people when it's completed in 2040, said KJ Shah, Dholera's senior town planner.

"The infrastructure given to this city will be world-class," Shah said. A glossy promotional video released by the state shows golf courses, solar panels, a new airport and a waterfront of space-age architectural designs. As a Special Investment Region, Dholera will be funded by the central and state governments, a Japanese contribution from the Delhi-Mumbai corridor project and private investors.

Local pushback: But some locals are fighting the proposal, which would bulldoze farmland. Persis Ginwalla, an activist with Jameen Adhikar Andolan Gujarat, a group protesting special investment regions, said the government was pushing to build the city without considering the impact on the 40,000 people who live in the area.



A decorated horse and his master participate in a competition in rural Dholera on January 8, 2012. About 40,000 people live in the area where the government hopes to build a new city.

Many lower class people will be "deprived of their means of livelihood," Ginwalla said. "These are farmers. The industry won't involve them and the jobs won't be there."

Officials promise compensation and increased land values, but Ginwalla said that the whole idea of replacing rural areas with new cities was misguided.

"I don't buy that argument that you need cities for development," she said, adding that the government should provide adequate services to people living in rural areas. Dholera's future remains uncertain. Some private investors have backed out, and it is being built on a flood plain -- a major engineering challenge, especially in a country where shoddy construction standards have led to deadly building collapses.

GIFT City: India's First International Smart City Coming Up In Gujarat

by Mohul Ghosh in India June 23, 2014

When BJP released its election manifesto, they had promised to build 100 smart cities in India. Little did we know that the process has already started and Modi had declared something which he knows that he will complete. In terms of Indian political structure, this is certainly something unheard of.

Around 18 kms away from Ahmedabad airport, Gujarat is building India's first International Financial Tech City: **"Gujarat International Financial Tec (GIFT) City"**, which is also India's first smart city to be created from scratch. Approximately Rs 70,000 crore will be spent on creating this 886 acres dream city, the features of which seems to be picked up from a science fiction movie!

What Will Happen At GIFT?

Imagine this: The buildings created inside GIFT city won't be air-conditioned in the traditional way but will be using 'district cooling technology', which is considered a far more energy efficient compared to any other form of cooling. They will circulate cool water among the walls inside a building, thereby making them naturally cool.

Where?
A 20 min drive from
Ahmedabad Airport

Highlights

- Cost Of The Project - 70,000 Cr
- Start Of Project - 2011
- End Of Project - 2021
- 5 Lakh Direct & Indirect Job Creation
- SBI, Bol & Syndicate Banks Have Signed up

**Gujarat International Financial
Tec (GIFT) City**

trak.in © 2014

Another example: Solid waste from households would be sucked out directly from homes at 90 km/hr speed via connected pipelines which leads directly to the waste processing plant. No other city in India can actually boast of such advanced level of waste disposition system.

The construction of this futuristic smart city had already begun in 2011, which is expected to be completed after a decade. Once it is fully functional, there would be a command center set up which will use the Information and Communication Infrastructure (ICT) to manage each and every aspect the city, right from traffic to water movement.



Underneath this smart city, there would be huge maze of tunnels spanning 12 kms which will contain everything from power cables to water pipelines.

5 lakh direct jobs and approximately same number of indirect jobs would be created once the project is over. As of now, couple of towers have been erected; Syndicate Bank, SBI, Bank of India and some other banks have already signed up to open their branches in this city. And unprecedented number of enquiries are coming up daily.

Planners behind GIFT are estimating that by the end of 2015, 30,000 – 40,000 people would be residing in this city; which will swell to 60,000 – 80,000 by the end of 2024.

How Big Is GIFT?

At 900 acres, GIFT is almost one tenth the size of Dubai International Airport which is 8500 acres in size, but the compact and advanced nature of the city, along with push for investment and business will make GIFT a truly world class smart city to live in. On the other hand, a new smart city at Dholera, Gujarat is being built which is twice the size of Ahmadabad.

Why Smart City?

By the end of 2030, more than 590 million Indians would be residing in urban locations. In 2008, there were 340 million Indians residing at urban locations. Since 1971, it took 40 years for Indian urban population to grow 230 million and the next 250 million would be achieved within 20 years.

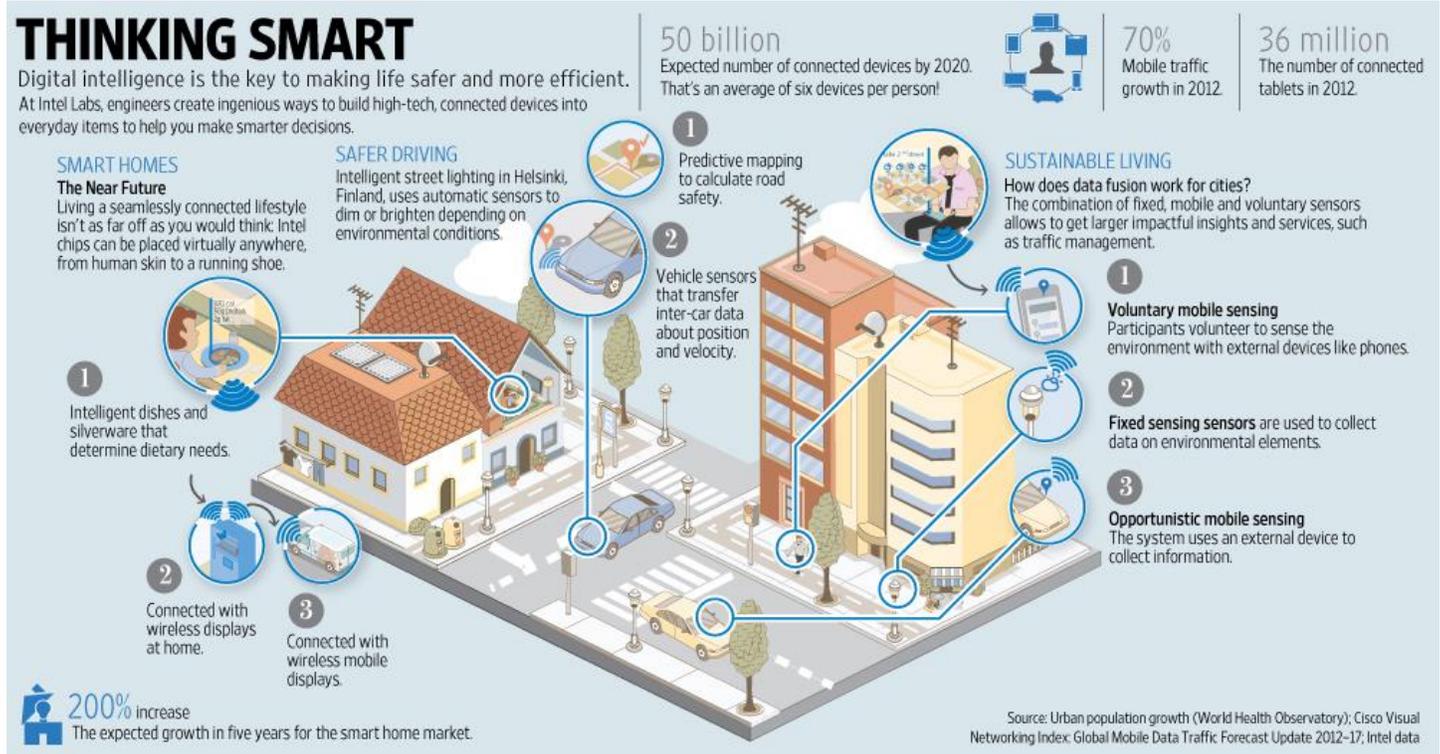
With such rapid expansion of human population around urban locations, it has become mandatory to build something which resolves all city problems with the aid of technology and science.

Other Smart Cities

There are other smart cities build in India and all over the world as of now. Globally, more than \$41 billion worth of investments are currently being utilized to create such futuristic smart cities, with companies like IBM involved in more than 2500 such projects all across the globe.

China, UAE, France, South Korea, Australia and more countries are right now building these smart cities.

As per the research undertaken as of now, it is expected that 2-2.5 million Indians would be residing inside these smart cities by end of 2040. The future certainly looks exciting now!



GIFT in Gujarat: Narendra Modi's dream project offers vital learnings for 100 smart cities ambition

22 Jun, 2014, 0704 hrs IST, TV Mahalingam, ET Bureau

INFRASTRUCTURE

“Smart cities are not about just e-gov. They use tech to transform core systems to optimize best use of finite resources,” says Rahul Sharma of IBM India.

Eighteen kilometers off Ahmedabad airport, two tall buildings rise out of literally nowhere. The twin towers with cobalt blue glass facades are anomalies in the otherwise brown, dusty landscape. At 122 meters and 28 floors high, the towers are the tallest in Gujarat. But height isn't really their claim to fame. The towers are the first buildings to go up in Narendra Modi's dream project: the Gujarat International Financial Tec (GIFT) City.

GIFT City, in all likelihood, will be India's first 'smart city' to be built from scratch. At GIFT City, the action is happening on the ground and under it. An army of workers is sweating in the sweltering sun, pounding roads and erecting buildings for a school, a fire station and a cooling plant. Workmen are also burrowing underground, digging what will eventually be a 12-km long maze of utility tunnels, through which everything from power cables to fibre optic cables to water pipelines will be routed.

When GIFT City's cooling towers will become operational, buildings won't use air-conditioning but district cooling technology, a far more energy-efficient process that circulates chilled water through buildings to cool them. Solid waste will be sucked out from homes and offices at 90 km/hr using pipelines leading directly to a waste processing plant.

When fully functional, GIFT City will have a command centre with information and communication technology (ICT) infrastructure spread across the city which will manage everyday chores like traffic movement.

The closest most Indians have been to experiencing anything like this is inside a cinema hall, for the price of the latest Hollywood sci-fi flick. But, that may change.

A Hundred Cities

In its election manifesto, the BJP had promised to build 100 hi-tech cities. The NDA government seems to be keen to fulfil that promise. "You cannot build cities overnight.

It takes 20-30 years to build a new city. Instead of just making new cities, our idea is to make our existing cities smart," Union minister for housing and urban development Venkaiah Naidu told ET a couple of days ago.

"There will be a mix. One, to convert an old city into a smart one. Two, to build new cities wherever possible," said Naidu.

For instance, seven new smart cities are being developed from scratch along the proposed Delhi-Mumbai Industrial Corridor (DMIC).

"We expect the first phase [40-50 sq km] of three smart cities — Dholera [Gujarat], Shendra-Bidkin [Maharashtra] and Global City [Haryana] — to be delivered by 2019," says Amitabh Kant, secretary, department of industrial policy and promotion (DIPP).

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GIFT in Gujarat: Narendra Modi's dream project offers vital learnings for 100 smart cities ambition

Kant, a former CEO and managing director of DMIC (he's still a director on the board), expects these cities to be home to 2-2.5 million people by 2040. India is not the only country building such cities (see What's Happening Beyond India, pg 11). Brand new smart cities are mushrooming in China, the UAE and South Korea.

Meanwhile, cities like Barcelona in Spain and Montpellier in France are implementing smart city solutions to deliver better services to their citizens. In fact, over the next 20 years, over \$41 trillion is expected to be spent on smart city projects. Given this, it is not surprising that

everybody from the computing giants like Cisco, IBM, Oracle to surveillance solutions vendors are licking their chops in anticipation.

"About 10% of the overall cost to build a smart city [or upgrade a current city] will be the cost for implementing surveillance solutions," says Sudhindra Holla, country manager, Axis Communications India, the Indian arm of the Swedish manufacturer of network cameras.

What's Makes it Smarter

So, what is a 'smart city' all about? "Smart cities are not about just e-governance. A smart city is one that uses technology to transform its core systems to optimize the best use of its finite resources," says Rahul Sharma, executive director and partner, global business service, IBM India.

Currently IBM is working on 2,500 smart city projects globally. At the heart of the smart city is a vast and all-pervasive ICT network that serves three broad purposes: improving a city's economic efficiency; promoting a better quality of life for citizens; and thereby promoting a sustainable urban environment.

Like Kant puts it: "In the new smart cities like Dholera [in the DMIC], we have planned for ICT as another layer of infrastructure along with roads, sewage. It is embedded right in the planning stage of the project." So, how different are the new smart cities likely to be from other cities? For one, most of them are not expected to be large urban sprawls like the existing metro cities. Take GIFT City, for instance.

"GIFT City has two main features: a smart city and a global financial hub," says Ramakant Jha, managing director, GIFT City. "We see nearly 30,000-40,000 people working out of GIFT City by the end of next year. In 10 years, GIFT City will create 5 lakh direct jobs and another 5 lakh indirect jobs," says Jha, adding that 60,000-80,000 people will be living in GIFT City by 2024. But then, is GIFT City really a city?

Or is it just a well-planned central business district (CBD) with fancy technology? After all, when it is fully built up, GIFT City will be about 900 acres in size — less than a tenth in size of Dubai's International Airport (8,500 acres). But then, consider this: the two most talked about smart cities in the world, Songdo (South Korea) and Masdar (UAE), are just about 1,500 acres each in size — larger than GIFT but much smaller than Dubai's airport.

Reluctant Urbanizer

"GIFT City's planners have moved away from the notion that Indian planners traditionally suffered from...to build long, sprawling green cities which frankly isn't going to work," argues Angshik Chowdhury, director, operations, of Smart+Connected Communities at Cisco India.

"Increasingly, most economic activities are going to happen in cities that are compact, where

there is primary emphasis on transport and job creation...GIFT is not a very, long sprawling city and the ability to manage the city is built in," adds Chowdhury.

Cisco's Smart+Connected portfolio includes remote access to city infrastructure management solutions for connected parking, traffic, safety and security. On the other hand Dholera, which is planned as a manufacturing hub, is spread across 900 sq km — twice the size of Ahmedabad. Does India really need such cities? If there is one thing everybody agrees on, it is that India is urbanizing and really fast. A 2010 McKinsey report throws up numbers that are any urban planner's worst nightmare.

By 2030, 590 million Indians will live in cities, up from 340 million in 2008. It took almost 40 years (1971-2008) for India's urban population to grow by 230 million. The next 250 million city dwellers will be added in half that time. The report suggested that India build nearly 25 satellite cities near large tier I and tier II cities, each accommodating up to a million people.

"India has been a reluctant urbanizer... but urbanization is inevitable," says Kant. "When America was urbanizing, both land and gas prices were cheap. As a result, the cities were built as large urban sprawls," adds Kant, pointing out that Indian cities don't have that luxury. "The use of ICT is an opportunity for Indian cities to leapfrog to the level of cities in developed countries," says Kant.

From Scratch or Not?

What is likely to be the Indian government's approach? Given that building cities from scratch is time and capital consuming, retrofitting smart technology in existing cities may be the way forward.

"It is easier to do it in a greenfield project as you start with a clean slate. Also, in a greenfield project, you can offer all services together," says Aamer Azeemi, managing director, Cisco Consulting Services, India who has spearheaded the American networking giant's ICT master planning efforts for Dholera.

However, brownfield projects (building on sites that have been developed before) are more expensive and tend to be painful to implement. "Just imagine the hassle of laying fibre in any part of Mumbai city," says an industry executive.

Kant says that the cost of ICT in the proposed DMIC greenfield cities is just 3-4% of total project cost. However, retrofitting cities with smart technologies can cost 1-2% more.

"In brownfield projects, cities first tend to offer services that have a revenue potential. How do I make parking smart so that it generates revenue to sustain other activities," asks Cisco's Azeemi.

"In greenfield projects, city managers tend to leverage the greatest asset they have the right of way for the information highways they have built.

A lot of cities invest in putting fibre on the ground and lease that out as it is used to offer common services," he adds. Building cities — smart or otherwise — from scratch is easier said than done.

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"The most important part of building a city is to focus on its economic centre," says Ajit Gulabchand, chairman, HCC, whose construction company is developing a 'hill city' called Lavasa in Maharashtra. "A good starting point is to ask: what is the anchor identity of the city? What is the soul of the city?" says Vinayak Chatterjee, chairman, Feedback Infra, a consulting firm. "Is it a refinery city or a university city? That answer will tell you where the city must be located and its master-planning contours."

For instance, refinery cities have to be based near ports, and a university town could be based in the hills, he adds. That will also determine how large or small a city is spread. That explains why Dholera, which is focused on manufacturing, will be almost 250 times larger than GIFT City, which is focused on financial services. Then comes, what Chatterjee calls, 'the anchor magnet' of the city. For instance, in Jamshedpur's case it was the Tata Steel factory.

New or Renew

"I will be glad if we have the economic plans and financial models tied up for five new smart cities in the next five years. That would be a considerable achievement," says Chatterjee. "My suggestion would be that the government, in addition to developing these five cities, pick five towns from each region in India and improve basic and core infrastructure, governance in these towns. These could become a model for rejuvenation of existing towns," adds Chatterjee. It's a point of view others see merit in.

"The greater wave of urbanization is happening in tier II and tier III Indian cities," says Ayona Datta, senior lecturer in Citizenship and Belonging, University of Leeds. "The government would serve people better by focusing its resources — by building schools, colleges and hospitals in these cities rather than creating large, expensive cities from scratch that serve the interests of very few people."

Another industry watcher ET Magazine spoke to put it more bluntly, "Today, we have over 4,000 towns that are badly in need of urban renewal. Do we really want to put financial resources and bureaucratic bandwidth behind creating brand new cities? The choice is this: do you want to have another baby or adopt an orphan?"

Beyond the Hype

Globally, greenfield smart cities are still experiments in progress. Their financial models are untested and breakevens a long time away. There has been considerable debate on whether smart cities are a passing fad. In a debate in *The Economist* last year, Anthony Townsend, a researcher who specializes in new technology in cities, had this to say about smart cities: "...in their rush to leap into a well-planned digital future, the designers of these prototypes have

ignored historical experience, how people shape cities, and the messy and organic nature of urban development. Sterile utopian enclaves, they have failed not only as real estate developments but also as incubators of future urban lifestyles."

Simply put, researchers are asking if smart cities put technology as the prime catalyst of change and not people. "My fundamental problem with the smart city model is the assumption that a city can be built with technology and...technology alone. Cities are built and shaped by people," says Datta. Land acquisition is another problem that new cities are likely to face.

In Dholera, farmers from 22 villages have already formed groups to protest the acquisition of fertile farm land for industrialization, says activist Sagar Rabari of Jameen Adhikar Andolan Gujarat. More importantly, even if India builds new cities, can it manage them effectively?

For that, India may have to get some structural fixes in place. "India has two tiers of governance — central and state — which work in parallel. There is no concept of city level governance in India. City mayors are not powerful in India unlike the rest of the world. Indian cities don't decide their own destiny. That needs to change," says Gulabchand.

A hundred smart cities may sound like a woolgatherer's wishlist, but the good news is the intent behind that vision — and the government's realization that India badly needs to overhaul its urban infrastructure. As one analyst who did not want to be named sums it up: "If we manage to renew even 10 of our tier II cities in the process, it would mean a great deal for India."