

IBM Reveals Five Innovations that Will Change Cities in the Next Five Years (w/ Video)

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- Cities will have healthier immune systems
- City buildings will sense and respond like [living organisms](#)
- Cars and city buses will run on empty
- Smarter systems will quench cities' thirst for water and save energy
- Cities will respond to a crisis -- even before receiving an emergency phone call

An estimated 60 million people are moving to cities and urban areas each year - more than one million every week. The fourth-annual “IBM Next 5 in 5” focuses on cities because the world is experiencing unprecedented [urbanization](#). Last year, our planet reached an important milestone - for the first time in history, the majority of the world's population resided in cities.

IBM's Next 5 in 5 is based on market and societal trends expected to

transform cities, as well as emerging technologies from IBM's labs around the world that have the potential to turn these predictions into reality.

Cities must simultaneously address increasing populations and deteriorating infrastructure. IBM is already working with cities around the world to make them smarter so they can sustain growth. In the next five years, by infusing intelligence into cities, they will change in the following ways:

Cities will have healthier immune systems

Given their population density, cities will remain hotbeds of communicable diseases. But in the future, public health officials will know precisely when, where and how diseases are spreading - even which neighborhoods will be affected next. Scientists will give city officials, hospitals, schools and workplaces the tools to better detect, track, prepare for and prevent infections, such as the H1N1 virus or seasonal influenza. We will see a "health Internet" emerge, where anonymous medical information, contained in electronic health records, will be securely shared to curtail the spread of disease and keep people healthier. IBM is already working with organizations worldwide, such as the Nuclear Threat Initiative's (NTI) Global Health and Security Initiative and the Middle East Consortium on Infectious Disease Surveillance (MECIDS), to standardize methods for sharing health information and analyzing infectious disease outbreaks.

City buildings will sense and respond like living organisms

As people move into city buildings at record rates, buildings will be built smartly. Today, many of the systems that constitute a building - heat,

water, sewage, electricity, etc. - are managed independently. In the future, the technology that manages facilities will operate like a living organism that can sense and respond quickly, in order to protect citizens, save resources and reduce carbon emissions. Thousands of sensors inside buildings will monitor everything from motion and temperature to humidity, occupancy and light. The building won't just coexist with nature - it will harness it. This system will enable repairs before something breaks, emergency units to respond quickly with the necessary resources, and consumers and business owners to monitor their energy consumption and carbon emission in real-time and take action to reduce them. Some buildings are already showing signs of intelligence by reducing energy use, improving operational efficiency, and improving comfort and safety for occupants. China Hangzhou Dragon Hotel (Dragon Hotel) has selected IBM to build an instrumented, interconnected and intelligent hotel management system as part of the hotel's transformation into a "Smart Hotel". Under the agreement, IBM will integrate the hotel's major systems.

Cars and city buses will run on empty

For the first time, the “E” on gas gauges will mean “enough.” Increasingly, cars and city buses no longer will rely on fossil fuels. Vehicles will begin to run on new battery technology that won't need to be recharged for days or months at a time, depending on how often you drive. IBM scientists and partners are working to design new batteries that will make it possible for electric vehicles to travel 300 to 500 miles on a single charge, up from 50 to 100 miles currently. Also, smart grids in cities could enable cars to be charged in public places and use renewable energy, such as wind power, for charging so they no longer rely on coal-powered plants. This will lower emissions as well as minimize noise pollution. IBM and the Denmark-based EDISON research consortium are developing an intelligent infrastructure to enable the large scale adoption of electric vehicles powered by sustainable

energy.

Smarter systems will quench cities' thirst for water and save energy

Today, one in five people lack access to safe drinking water, and municipalities lose an alarming amount of precious water -- up to 50 percent through leaky infrastructure. On top of that, human demand for water is expected to increase sixfold in the next 50 years. To deal with this challenge, cities will install smarter water systems to reduce water waste by up to 50 percent. Cities also will install smart sewer systems that not only prevent run-off pollution in rivers and lakes, but purify water to make it drinkable. Advanced water purification technologies will help cities recycle and reuse water locally, reducing energy used to transport water by up to 20 percent. Interactive meters and sensors will be integrated into water and energy systems, providing you with real time, accurate information about your water consumption so you will be able to make better decisions about how and when you use this valuable resource.

Cities will respond to a crisis -- even before receiving an emergency phone call

Cities will be able to reduce and even prevent emergencies, such as crime and disasters. IBM is already helping law enforcement agencies analyze the right information at the right time, so that public servants can take proactive measures to head off crime. The Fire Department of the City of New York has selected IBM to build a state-of-the-art system for collecting and sharing data in real-time -- to potentially prevent fires while protecting rescuers. IBM is also designing smart levee systems to prevent cities from devastating floods.

More information: For more information visit ibm.com/smartercities

Source: IBM

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