INTRODUCTION
Technology is already creating significant new economic opportunities for cities, and cities are leveraging those opportunities to improve quality of life and drive innovation. The Internet of Everything (IoE)—the networked connection of people, process, data, and things—will create the basis for this new urban economic opportunities, with consequences for both cities and residents. This new economic power will be driven by increased revenues and lower costs. The Internet of Things (IoT) will enable cities to connect the previously unconnected, learning more than sixty-nine percent of physical objects that make up the IoT are still unconnected to the Internet today. This will change.

These emerging uses for cell phones are an early taste of the potential transformative effects of the Internet of Everything (IoE)—the networked connection of people, process, data, and things. IoT creates the means to support increased revenues and lower costs. These benefits are not limited to urban economic opportunities, but will be realized in rural economic opportunities, as well. The Internet of Things (IoT) will enable cities to connect the previously unconnected, learning more than sixty-nine percent of physical objects that make up the IoT are still unconnected to the Internet today. This will change.

People
Today, most people connect to the Internet through their cell phones (such as PCs, tablets, and smartphones) and personal networks (such as Facebook, Twitter, LinkedIn, and Pinterest). As the Internet evolves toward IoT, we will be connected to more relevant and valuable ways. For example, people will be able to see what a doctor or surgeon has to say about the Internet of Everything.

Process
Process is an important issue in how each of these entities—people, data, and things—are connected. The process to deliver value to the connected world of IoT involves three steps:

1. **Data**: Today, devices typically gather raw data and stream it over the Internet to a central source, where it is aggregated and processed. In the future, this process will become more automated, and cities will be able to turn high-level information back to people and process for further evaluation. Advances in machine learning technology will make it easier for people to inform themselves and make informed decisions.

2. **Things**: In IoT, sensors, devices, and anything else that generates data, become connected users and provide more meaningful information to people and machines. Smart meters will be able to exchange real-time information on the status of power feeds, and disponible meters will be able to control everyday items such as milk coolers.

3. **Connect**: When these four components work in concert, they produce more relevant and valuable information than one before. The information can then be used in innovative and transformational ways.

Consider power grids. Utilities today typically operate on a best-effort infrastructure. These efforts are designed to connect the electric grid without taking full advantage of their assets. This makes the grid vulnerable and allows only for a one-way flow of electricity—from producers to consumers. Today’s smart grid is designed to take full advantage of the assets that are available. This is making the grid much more efficient and allows for a two-way flow of electricity— from producers to consumers, but also from consumers to producers. This enables the grid to be more efficient, flexible, and effective, allowing the grid to evolve toward IoT. This will improve the health and productivity of the grid, and allow it to adapt tochanging business needs while reducing the total amount of capital invested. The grid will become more efficient and productive, and the energy grid will be able to support electric vehicles and other connected devices.

When these four components work in concert, they produce more relevant and valuable information than one before. The information can then be used in innovative and transformational ways.

CONCLUSION
Who made the Internet what it is today are the same people who are taking IoE to the next step, delivering intelligent networks that will learn, listen, and respond to the needs of real people living in real cities. Challenges abound for the city leaders of today. The rapid pace of change spares confusion and misinformation, often leading to poor decision-making or, worse, inaction.

The good news is this: we can address these challenges on a scale like never before.
The Internet is evolving in accelerating waves. It’s not just about the number of things that are connected to the Internet, but the connections themselves. It’s in the connections that matter, not the number.

**Internet of Things vs Internet of Everything**

<table>
<thead>
<tr>
<th>Year</th>
<th>Internet of Things</th>
<th>Internet of Everything</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>10M</td>
<td>10B</td>
</tr>
<tr>
<td>2000</td>
<td>200M</td>
<td>200B</td>
</tr>
<tr>
<td>2013</td>
<td>10B</td>
<td>100B</td>
</tr>
<tr>
<td>2020</td>
<td>50B</td>
<td>500B</td>
</tr>
</tbody>
</table>

**THE NEXT BIG THING**

How smart city initiatives can use advanced technology to meet basic needs.

Gordon Feller

**SOURCES**

Cisco, IBSG, 2013