

CHAPTER 6 FOUNDATIONS OF BUSINESS INTELLIGENCE: DATABASES AND INFORMATION MANAGEMENT

CASE 1 **Dubuque Uses Cloud Computing and Sensors to Build a Smarter City**

(a) Dubuque



VIDEO
CASE



URL <http://www.youtube.com/watch?v=mBSVITlkiBw;L=3:57>

(b) Portland



VIDEO
CASE



URL <http://www.youtube.com/watch?v=uBYsSFbBeR4;L=2:24>

SUMMARY Dubuque and Portland use IBM information systems and cloud technology to become a “smarter city” by achieving more efficient utilization of resources like water, electricity, natural gas, and travel routes.

CASE A “smart city” is a city where the day-to-day processes and the infrastructure of the city are able to provide real-time data to the city and its citizens, allowing them to better allocate resources and plan for the future.

Smart cities can be identified using six dimensions: a smart economy, smart mobility, a smart environment, smart people, smart living, and smart governance. Cities are “smart” when investments in social capital and infrastructure coupled with wise management of natural resources fuel sustainable economic development and a high quality of life.

Smart cities focus on Information and Communication Technologies (ICTs). One promising type of ICT is the wireless sensor network. The goal of wireless sensor networks is to create a distributed network of sensors which measure a host of parameters that allow city management to run their city more efficiently. Ideally, ICTs will help increase local prosperity and competitiveness.

For example, citizens of smart cities can monitor pollution concentration on their specific street, and trash cans can send signals when they are close to full. Vehicle traffic and street light usage can be monitored to optimize city lights dynamically.

In smart cities, people have the tools to quickly and easily get the data they need to make smarter choices about their energy consumption. All the data in the world is useless without information systems that effectively communicate that data to users. Using IBM technologies, Dubuque was able to determine how much water was saved by decreased consumption and leak detection, as well as precise information about how much electricity individual appliances are consuming.

Users don’t see the back end infrastructure underlying these ICT technologies, which are increasingly depending on the cloud. Using the cloud has made these technologies integrated and, more importantly, cheap enough for cities like Dubuque to use to their fullest extent. They also don’t see the sheer amount of data that they are generating, because IBM’s systems distill that data into smaller chunks of relevant information that allows Dubuque’s citizens to live smarter.

In Portland, IBM has created a model that allows city leaders to simulate the impacts of changes to various utilities. They collected ten years of data and built a model that supports the development of new metrics and identifies drivers of change for the city’s strategic plan. Using this data, Portland city officials hope to achieve a 40 percent reduction in carbon emissions by 2030 and an 80 percent reduction by 2050.

**VIDEO CASE
QUESTIONS**

1. Why is the cloud important to cities like Dubuque as they pursue their visions of a smart city?
2. What do Dubuque officials mean when they talk about a “smarter city?”
3. List the major “smarter city” projects in Dubuque. What has been the impact of the smarter domestic water program?
4. What is Dubuque’s next move now that they have developed some successful pilot projects like the water program and electricity program?
5. How is the approach taken in Portland similar or different to the approach taken in Dubuque?

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