



What is a **SMART CITY**?

Asset**WORKS**

You may have seen headlines like these over the past few years:

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Portland Uses
50% Renewable
Energy.

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Boston is Turning Grass
Clippings into Methane
to Generate Power.

Denver is Recycling Fly Ash
to Make Green Concrete and
Now Requires this to be Used
in All City Projects.

Seattle's Bullitt
Center Uses Solar
Power to Produce
60% More Energy
than it Uses.

These cities have found some clever and effective ways to improve sustainability. To become a sustainable city – to find the balance of usage and impact that will allow future generations to grow and to continue to enjoy their habitat – means being smart. But this begs the question...

IS YOUR CITY SMART?

What is a Smart City?

THE BASIC IDEA: smart cities utilize modern digital technology to solve problems while managing resources efficiently.

Smart cities are usually understood to provide networked services that work across departments to retrieve data and to organize it into understandable and useful information. These networks are usually connected to different kinds of sensors, monitors and feedback mechanisms that collaborate to enable things like:

AUTOMATION – like turning on the lights at night

INFORMING CAPITAL PLANS– by monitoring traffic usage patterns

STREAMLINING BUSINESS OPERATIONS – like online permitting

CITIZEN ENGAGEMENT – like volunteer management and mobile 311 systems

The good news is that there is no one right way to go about it: you get to define what you want your smart city to do. In fact, you may have already done some of these things in your city.

Your City is Probably Already Smart

You probably already live in a smart city – to some extent – if you have any of these things:

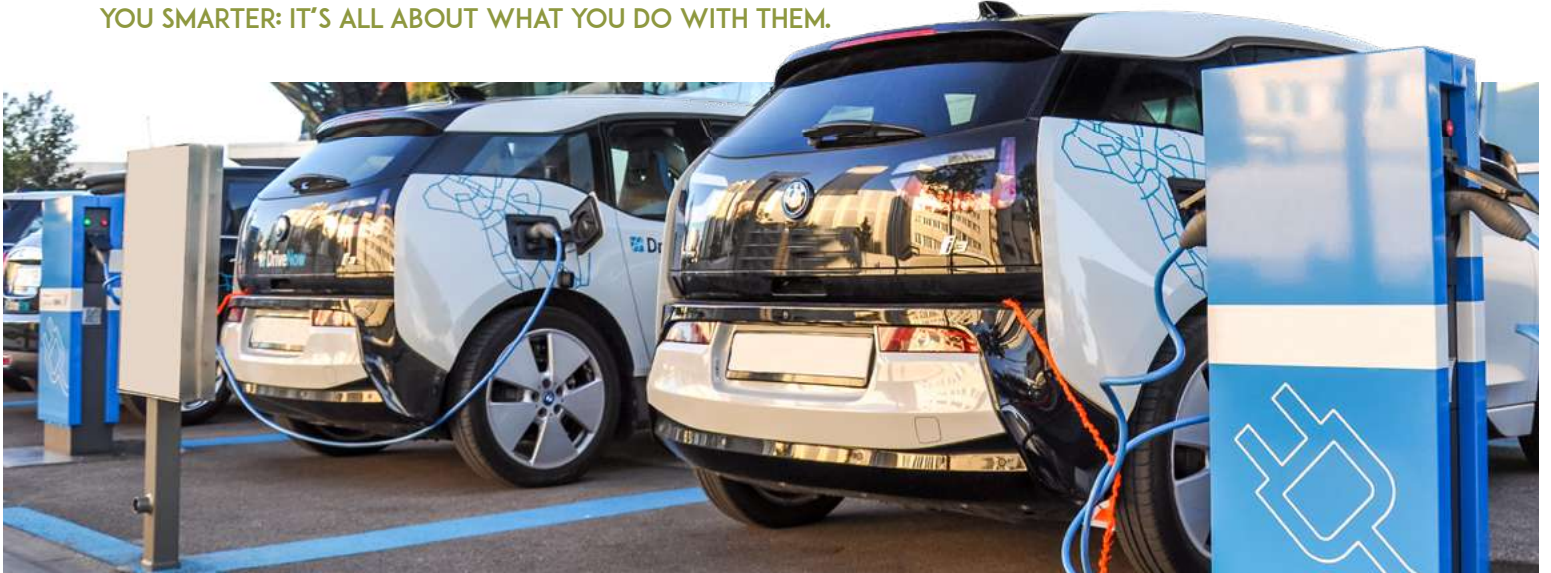
- An app that can help you find parking downtown
- Transit stations that show arrivals and departures in real-time
- A city website that shows the progress of capital projects and their effects on traffic
- An emergency management system that sends text messages to citizens
- Lyft or Uber drivers
- Restaurants and other businesses in your community are listed in an online search engine that shows what hours they are open and allows citizens to post

Those last two items may seem surprising. But, like it or not, ridesharing has become a part of the transportation infrastructure in your city, competing with local taxi services and with any mass transit services you may have.

Ask yourself: do these particular services make my city any smarter? Your citizens probably benefit, but if you can't use this data to inform your own decisions then you might be missing out on some valuable information.

Taxis and business information services are nothing new. Remember the yellow pages? But what makes these services smart? Is it that they are so connected? Not just to maps, but to everything?

NO – WHAT REALLY MAKES THESE SERVICES SMART IS THAT THEY MAKE YOU SMARTER: IT'S ALL ABOUT WHAT YOU DO WITH THEM.



How Good is Your Information?

Smart services enable you to make informed decisions by providing you with near-real time information about your data that has practical qualities. Knowing these qualities can help you judge whatever “smart” solutions you are looking to integrate into your city.

USEFULNESS — Can you actually act on the information?

Useful information should be able to drive a specific decision such as where to park, or whether it is too cold and snowy to even go out today.

TIMELINESS — Do you get the information in a timely manner?

While it may be of interest to civil engineers, it's no good to drivers to find out that a parking spot was available yesterday.

PRESENTATION CLARITY — Is the information accessible and visual?

Turn the (new but) old joke into a question: Is there an app for that?

FITNESS — Is the information suitable for addressing the problem?

Does it meet the necessary quality standards and the appropriate privacy requirements?



Evaluating Smart Systems

If you are planning a major capital investment in some new service, you will usually do some kind of RFP and/or get demonstrations from vendors. You can use these practical qualities to make up a checklist specific to your problem. In the example below, you are considering investing in a network of traffic sensors, and you have developed a simple checklist to make sure all of your qualities are met:

Example Traffic Sensor Information Quality Checklist

USEFULNESS	TIMELINESS	PRESENTATION CLARITY	FITNESS
<input checked="" type="checkbox"/> Can get vehicle counts	<input checked="" type="checkbox"/> Get traffic counts in real time	<input checked="" type="checkbox"/> Visible on map/ integrates with GPS	<input checked="" type="checkbox"/> Sensors are accurate & calibrated
<input checked="" type="checkbox"/> Differentiates counts between large vehicles (trucks) and small i.e., weight or axle-based	<input checked="" type="checkbox"/> Get air quality index in real time	<input checked="" type="checkbox"/> Can data easily be analyzed in charts and reports?	<input checked="" type="checkbox"/> Uses secure communications for talking to devices, especially cameras
<input checked="" type="checkbox"/> Can capture still images	<input checked="" type="checkbox"/> Get media (images & video) in real time	<input checked="" type="checkbox"/> Available in smart phone apps	<input checked="" type="checkbox"/> Media is stored in compliance with privacy standards and local laws
<input checked="" type="checkbox"/> Can capture video	<input checked="" type="checkbox"/> Get historic data	<input checked="" type="checkbox"/> Available on a website	
<input checked="" type="checkbox"/> Can measure air quality index	<input checked="" type="checkbox"/> Can send emergency alerts for configured events	<input checked="" type="checkbox"/> Integrates with asset management software	

Using checklists like this will help you quickly compare multiple products when you are weighing solutions. You will also want to look at the many other standard factors related to the project like installation cost, network requirements, compatibility, etc.

What is a Data Silo?

One of the challenges of migrating to a smart city platform is breaking down data silos. Why use the term “silo” when it comes to data?

Traditionally, a lot of a city’s data was under the sole control of a single department and was not available to the rest of the organization. This is what is called a data silo.

Sometimes there is a good reason to silo data – it can protect certain sensitive data, for example – but often the silos exist because there was no better alternative at the time.

Another common reason is that departments sometimes create their own in-house software, and often this software is created by individuals who are not trained software engineers, and who don’t always incorporate proper data modeling, security engineering and information lifecycle management into these designs.

As time passes, departments change and people move on, and often these systems must be either re-written from the ground up, or abandoned in favor of modern, cloud-based solutions.

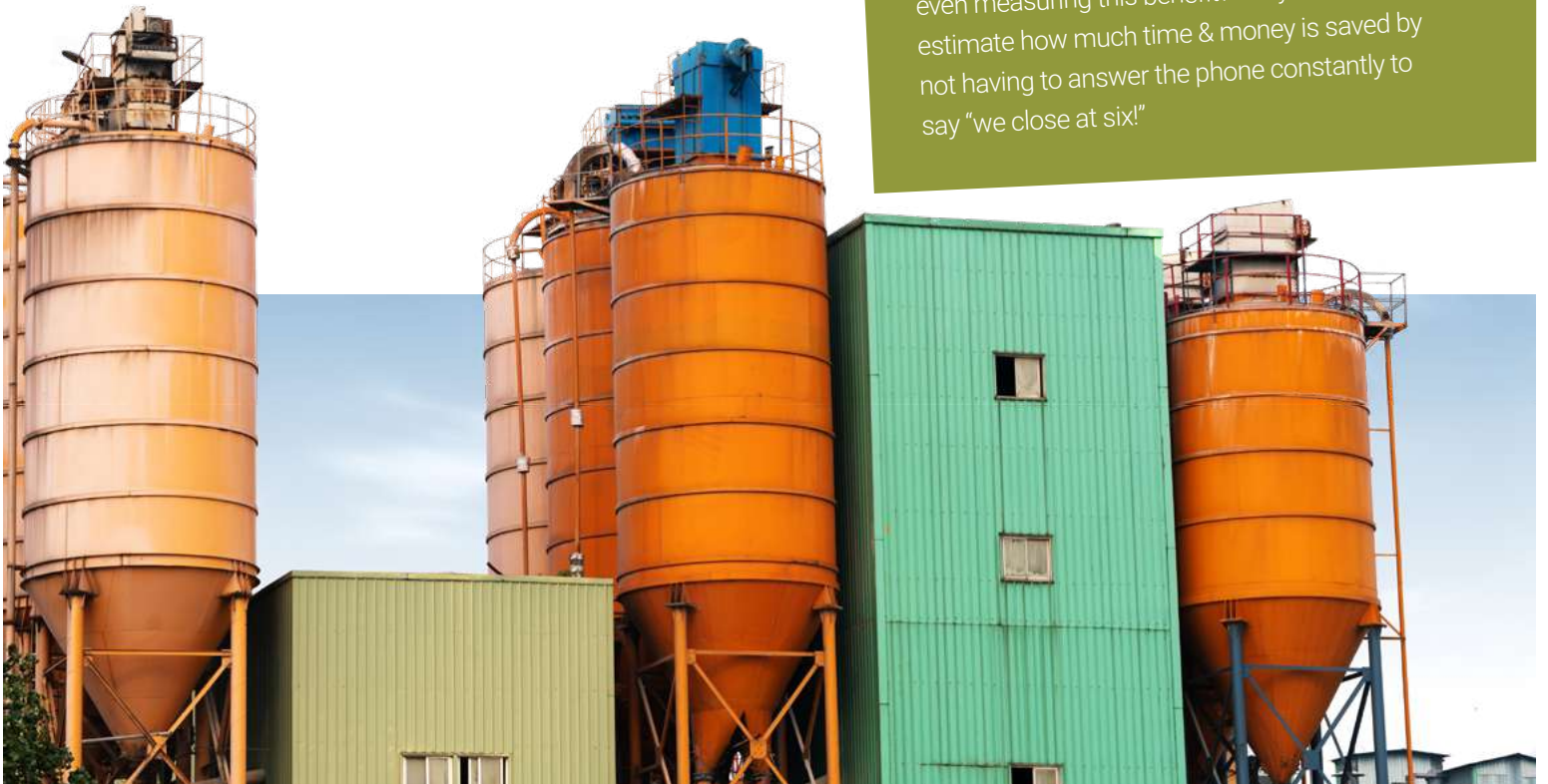
Example: Geographic Information Systems

THE SETTING: GIS data as a data silo. Sometimes even different departments use different GIS. Often this happens at different levels of government. For example, maybe the state maintains the GIS data, but your city maintains the linear reference data for your streets. Joining these together requires a lot of manual work and if they get out of sync (because of construction in the future, or due to poor or inconsistent data collection) then the work has to be redone to get things back in sync. When things are not in sync your decisions makers might make poorly informed decisions – and it will cost you.

FUN FACT!

Consider a common reason people call businesses: to find out when they are open and when they close.

This information was traditionally known only by each business — you had to call or go in person to ask somebody who worked there. Yelp, Google and other similar services moved this out of a silo and made it available across all businesses on their search engines. Are these businesses even measuring this benefit? They could probably estimate how much time & money is saved by not having to answer the phone constantly to say “we close at six!”



From Theory to Practice: Can Your City Get Any Smarter?

Quick recap: a smart city is a city that solves its problems by using information technology to monitor, plan and effectively use resources.

Some aspects of a smart city are:

- Modern computer networks that enable cross-department information sharing
- Support for maps and GIS, and an organized, timely presentation of useful information
- Sensors, alerts, notifications and reports that enable informed decision making
- The ability to quickly connect with and engage your community and citizens

But what are some specific things that you can do in your own city?

- 1) Data platforms for physical asset management
- 2) Project ranking and selection
- 3) Sensors and IoT
- 4) Crowdsourcing

EAM and GIS: The Powerful Tools Your Organization Needs

AssetWorks Enterprise Asset Management software (EAM) is a comprehensive asset management system that handles all aspects of public infrastructure management, including complex networks of linear and boundary-based assets. With EAM's Esri Integration, visual, map-based views help to link spatial information with asset management information so you can work on making your city smart.

To learn more about AssetWorks EAM, visit assetworks.com/eam.



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