

SMALL CITY DASHBOARDS...*Small cities can be smart cities.*

Vision.

A dashboard is a single place, call it a Data Analysis Center, with a broad range of selected real time information designed as a System for collecting, viewing, analyzing and responding to the information displayed in a timely manner.

Strategy for Implementation.

Like many journeys, the key is to start. “Ready, fire, aim” is not always the right approach, but in this case, it is exactly the approach needed for success.

Dashboards have existed for years, even before computers intervened. The purpose is to collect data in such a way that it is useful for managing ordinary and extraordinary events. Computers and digitization have dramatically improved the effectiveness of dashboards, but they do not obviate the process.

The core strategy is to identify a portfolio of key factors to monitor with the dashboard; and to start implementation immediately thereafter. Do not procrastinate based on an ill-conceived threshold of needing to have a complete system on day one.

Start, if you must, with a paper-based system using readily available, recurring data; or start with a spreadsheet; or start with a sophisticated program; but start. Don’t let the awesomeness of the final system deter the first steps. Begin with two things: the best system that can be established in a few weeks and the design of a framework for a final version of the dashboard.

Use the framework to build the content and sophistication of the dashboard over time. Start with what you have. It may take years to get all the data sources organized and the technology assembled, but start with what is available and build over time. The system will get richer in content and usefulness every year.

Initial Framework Ideas.

Identify and achieve strategic objectives as milestones on the journey to a meaningful dashboard reflecting information that is timely, recurring and useful.

The essence of the idea is to use existing data flows to populate the dashboard. For example, the utility department knows the flows of water and wastewater on a monthly basis as it does billing. The capacity of the water and wastewater plants is monitored. Capture this data in city hall as part of a comprehensive dashboard. Traffic accident information by location and type is readily available, recurring and useful as are many data sets.

Data Already Available within Most Cities.

Cities are full of data; the trick is to organize and routinize its collection and reporting into a comprehensive and cohesive database. Start with:

- Crime reports by type and location.
- Traffic volumes by location.
- Traffic accidents by location.
- Water and wastewater flows.
- Electric power consumption.
- Weather data.
- Fire responses by location.
- Emergency medical responses by location.

More data and increased frequency of reporting can be added over time as data source formats are organized and the city’s technology grows.

The final system may have “smart poles” throughout the city using streetlights and power distribution poles to host sensors connected to the internet. This system can provide information to the city’s dashboard providing information for responses to emergencies, solutions for routine problems, maintenance scheduling and much more.

Sustainability and Climate Change Data.

Incidentally, the information used by the city for operations is also the information that helps the city, its residents and businesses take actions and institute programs to conserve resources and reduce greenhouse gases.

A dashboard that has real-time data reported continuously to the public encourages citizen actions that are data-driven. The dashboard also reports progress, when it occurs, that further encourages positive actions.

Action Plan.

1. **Start with readily available data** that is recurring and useful to the management of a small city. Dashboards also work for special districts.
2. **Design a long-term framework** for a sophisticated dashboard. As the dashboard evolves, so will the end-game. Use the framework to fill in the empty spots over time. Starting with a build-out framework and a spreadsheet will identify opportunities for future expansions.
3. **Identify and select city-wide or special district information** available in real time that describes the state of the city in terms of public safety responses, community health issues, infrastructure conditions, traffic congestion and unanticipated citizen complaints and emergency conditions.
4. **Organize the data flow** in formats that are compatible and convertible to a cohesive digital platform, now or later.
5. **Collect the selected real-time information** from the various city departments and other available sources:
 - a. To route all information to the city's Data Analysis Center.
 - b. To constantly verify the data quality.
 - c. To add data and collection processes to complete the palette of selected data necessary to monitor the health and safety of the city.

6. **Build the technology** in the data center with computer systems that can grow in sophistication over time.
7. **Properly staff the city's Data Center.**
8. **Monitor the dashboard system** by periodically reporting issues and responses in order to evaluate performance.
9. **Work towards a built-out "smart" network** that systematically employ sensors to collect and distribute information using "smart poles" [streetlight and utility poles] with sensors connected to the internet. Once data is on the internet, it can be routed to city hall for analysis and action.

Sample Data for a Built-out Network.

1. Public safety abridgements.
 - a. Crime responses.
 - b. Readiness, personnel and equipment.
2. Community health issues.
 - a. Patient volume at emergency rooms and walk-in clinics.
 - b. Contamination conditions: hazardous waste, water quality, air quality.
3. Infrastructure [Water/sewer/drainage] conditions.
 - a. Service outage.
 - b. Line breaks.
 - c. Flooding locations.
4. Traffic congestion.
 - a. Accidents
 - Traffic re-routes.
 - Injuries.
 - Vehicle removal.
 - b. Congested intersections.
 - c. Traffic light/signal synchronization.
 - d. Transit ridership.
 - e. Ridesharing complaints.
 - f. Parking availability in public lots and street blocks.
5. Unanticipated citizen complaints and emergency conditions.
 - a. Calls to city hot lines, non-emergency.
 - b. Calls to 911, emergency.
6. Any other data collectible by a sensor.