



# How Data Quality Keeps Government Modernization on Track

Technology that improves data quality helps automate manual processes, improve service delivery, and enhance decision-making in demanding times.

The ongoing COVID-19 crisis has challenged state and local governments to look at every aspect of how they work and deliver services. As constituents seek more information and support, timely and effective response depends on having accurate and consistent data across all systems. And as employees continue to work from home, reliance on manual data entry and workflows becomes a big barrier to getting things done.

The recent pandemic has also increased the need for governments to make immediate decisions that can have a huge impact on their constituents, internal employees, or local businesses. To make the best choices, governments need a foundation of data that is complete, consistent, and that can be trusted. Yet many governments have poor data quality due to paper processes that lead to human error and inconsistencies across data collection, entry, and processing.

Although many government agencies prioritize reducing their paper processes, they don't always see the link between those processes and data quality. It's time to bring that connection to light—both to improve operations and services today and to build a foundation for modernization in the future. This white paper presents an in-depth discussion about the role of data quality—and the technology that supports it—in any government modernization plan.

## The True Price of Low Data Quality and Paper Processes

In late 2019, the Center for Digital Government (CDG) surveyed 135 state and local government leaders about the impacts of poor data quality and paper processes on organizational effectiveness. The survey also asked respondents about strategies and solutions they will deploy

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to address those impacts, modernize operations, and become more customer-driven.

Results from the survey clearly indicate that process inefficiencies and higher costs are perennial issues related to data quality. The pandemic has only magnified these challenges.

Two-thirds of governments say they are losing efficiency and effectiveness because their organizations are bogged down with paper processes. Even more respondents (87 percent) say they waste at least one hour a day because of poor data quality. And nearly all say poor data quality decreases efficiency, reduces overall workload capacity, and impairs their organization's ability to make data-based decisions.

Higher direct and indirect costs are another consequence of poor data quality, as indicated by three-fourths of respondents. Direct costs include lost efficiency and effectiveness due to paper processes, as well as the time and resources required to correct data quality.

Indirect costs can also have significant negative impacts on the government agency and its stakeholders. For example, publishing inaccurate data can impair program outcomes, damage an agency's reputation, or contribute to citizen dissatisfaction. Noncompliant data can lead to difficulty in meeting regulatory or reporting requirements, or the potential for legal and remediation costs. Incomplete data can mean underestimating levels of need and missing out on funding for important community programs.

## Where Do Data Quality Issues Come From?

The CDG survey found data quality problems typically arise from these top factors:

- Human error in manual entries made by employees and citizens
- Limited standards, if any, for how data is entered
- Lack of clarity about who has responsibility and authority for data quality
- Duplicate records across programs and systems that have inconsistent information

"It's easy to understand that if you have bad data, you get bad decisions," says Phil Bertolini, CDG co-director and former CIO and deputy county executive of Oakland County, Mich. "You'll also have to work harder to get a decision because you'll need to clean up the data anyway."

These data quality issues affect how well a government delivers services. Among the CDG respondents, 93 percent say poor data quality contributes to delays and frustrations for constituents.



## Use Cases: Modernization Through a Data Quality Focus

**Data quality strategies are important across all departments,** but especially those for tax and revenue, health and human services, licensing, elections, employment services, parks and recreation, law enforcement, and justice. Government modernization and enhanced data quality are also linked in several use cases.

**LARGE VOLUMES OF CONSTITUENT DATA.** From licenses to assistance program enrollments to recreation class registrations, many governments maintain a large amount of resident and business data. The more data collected and the more sources for collecting it, the more opportunity for inconsistencies and errors.

**RECORDS IN MULTIPLE DATABASES.** Personal and professional licenses are one example of where data for one person may exist in multiple systems. It's important to ensure data consistency and enable the customer or an authorized employee to see the individual's entire relationship with the agency.

**SYSTEM MIGRATION OR UPGRADE.** Any significant change to an agency system often uncovers data quality issues that may halt the project until they are resolved. The move to

a better system offers a good opportunity to perform a data cleanup, then to implement standards and controls that sustain data quality going forward.

**IDENTITY AND DATA VERIFICATION.** Many transactions and processes to determine program eligibility require the ability to verify a person's identity or review previous history. Even slight variations in data across systems can make these tasks more difficult and time-consuming.

**SELF-SERVICE PORTALS.** Permit applications are an example of a transaction where data should be structured into a standard format no matter who makes the entry. When data like addresses can be automatically validated for accuracy and completeness, more transactions can move from paper forms that must be entered by an employee to online self-service for residents or businesses.

**WORK EFFICIENCY AND SERVICE ENHANCEMENT.** Many work processes can be streamlined when they have access to consistent and complete data. And when constituent information is enriched with demographic and related profile data from a trusted external source, it enhances the government's ability to determine how to best target services.

These impacts of poor data quality not only limit a government's effectiveness today, they can also hinder efforts for improvement. Yet Bertolini notes that modernizing a system offers the opportunity to clean the data it uses.

## The Link Between Data Quality and Modernization

Although 92 percent of survey respondents see the relationship between data quality and modernization, there are differing views of which is the driver and which is the outcome. The majority of respondents said they need to modernize first, and data quality will follow. And although it is true that modernizing systems and processes can improve data quality, that is not the only path.

By focusing on data quality first, governments can often adopt advanced technologies such as artificial intelligence (AI) and predictive analytics that can significantly improve processes and constituent services.

"We're already seeing growth in the use of AI and the impact of that technology on modernization," says Teri Takai, CDG co-director and former CIO for the states of Michigan and California. "The automation enabled by AI and analytics will help governments mitigate the impacts of tight budgets and staffing constraints."

Governments may find that many data quality issues can be easily solved with today's technology. For example, data entry errors, duplicate records, and lack of standards for data formats can be readily detected, flagged, and even corrected automatically by data management software.

"When a database has millions of records and tens of millions of entries in those records, you need to systematically address the data quality issues and build automated rules to maintain that level of quality," says Ray Wright, director of marketing strategy at Experian's data quality division.

## Managing and Improving Data Quality

Nearly three-fourths of survey respondents said their organizations are applying one or more strategies to improve data quality. These strategies include:

- Digitizing some citizen-facing services and their related processes to reduce paper
- Centralizing and sharing data to reduce duplicate efforts and unnecessary processing
- Using automation to reduce manual information reviews by staff

To help with these strategies, a government may use some form of software such as an automated data validation solution. But today's

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solutions extend beyond this basic data validation to a software platform that enables broader management of data quality.

A quality-focused platform helps the organization avoid storing data that is inaccurate and will skew results in searches and analytics. This platform can bring together data sets from multiple sources to create a single view. It also supports multiple features for cleanup, profiling, and enhancement to improve overall data quality.

Checking a person's contact data against external, verified sources is the work of a data cleanup feature. For example, data cleanup can check a postal address against United States Postal Service databases to confirm the address is valid, doesn't contain typos or format errors, that a change of address order has not been filed, or that the person is no longer in the database because they are deceased.

The data cleanup feature can also enhance a person's contact record with current phone numbers that are identified as landline or mobile to allow contact via text message and to support compliance. When duplicate records exist for a person, the data cleanup feature can find them and delete or suppress them.

Another feature, data profiling, verifies that common data forms like date of birth are entered consistently across multiple databases. Profiling also checks for variations in data values or format, as well as problems in database synchronization. Because the platform flags these issues, analysts can easily find data that needs correction without manually searching through thousands of records.

Consistent formatting across databases is essential to apply analytics and generate accurate reports. A platform can perform format checks, group data, and identify relationships between columns to detect data entries that do not follow the standard format defined by the agency.

As the organization continues its data quality efforts, the platform should provide a clear score of improvement levels over time. This score helps the agency track progress and identify where improvements are still needed, such as use of a pop-up tool to assure data is entered correctly in online forms.





## Making a Difference in Child Welfare Programs

**The federal Comprehensive Child Welfare Information Systems (CCWIS)** regulation is one example of a mandate that focuses on data quality. This regulation specifies that all data in child welfare systems must be complete, timely, accurate, consistent, and uniform.

By applying these standards for data quality, an agency can—first and foremost—deliver services that will make life better for the children and families in care. Several other positive outcomes can be gained from improving data quality in any services-focused agency:

- ✓ Faster, more informed decisions based on up-to-date information on all parties and factors involved in a case
- ✓ Easier monitoring and reporting on the agency's overall service delivery levels.
- ✓ Simpler data management and exchange with connected systems
- ✓ Insights that help agency and program leaders optimize operations and increase accountability

A data quality platform is typically implemented in on-premises servers that integrate with agency systems and database infrastructure. This implementation avoids usage-based costs for cloud services and gives the organization direct, verifiable control over data access.

## Benefits of a Focus on Data Quality

Once in place, a data quality platform produces benefits for the government, its employees, and the public.

Multiple systems that can access the same accurate and complete data mean less wasted time for employees and citizens. Websites and mobile apps can deliver a better user experience that increases trust in the government's data handling.

The government as a whole gains operational and service benefits from a full, consolidated view of its data. The ability to eliminate duplicate records and consolidate databases reduces costs for storage infrastructure and services. Staff have better information to determine program eligibility, avoid duplication of services, and prevent fraud. Finally, accurate and centralized data helps the government adopt and make better use of advanced technologies in modernization projects.

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Teri Takai, Co-Director, Center for Digital Government

## How to Get Started

Several strategies can help a government successfully implement a data quality and enhancement solution.

**IDENTIFY CHALLENGES AND DRIVERS.** Ask these questions to define the reasons to invest in a data quality solution:

- 1 Can the organization work effectively with data captured from a mix of online and paper-based processes?
- 2 How much does poor data quality delay and hinder operations, services, and decisions?
- 3 How much time do staff spend on correcting data and what costs and time delays does this create for the agency? What are the impacts of those delays for the citizen or business being served?
- 4 How much duplicate data does the agency store and what is the associated cost and management burden?
- 5 How much of our data triggers a customer notification or an employee action that can have a negative impact if the data is wrong?
- 6 How does poor data quality affect the organization's ability to serve constituents quickly, easily, and accurately with the modern online services they expect?

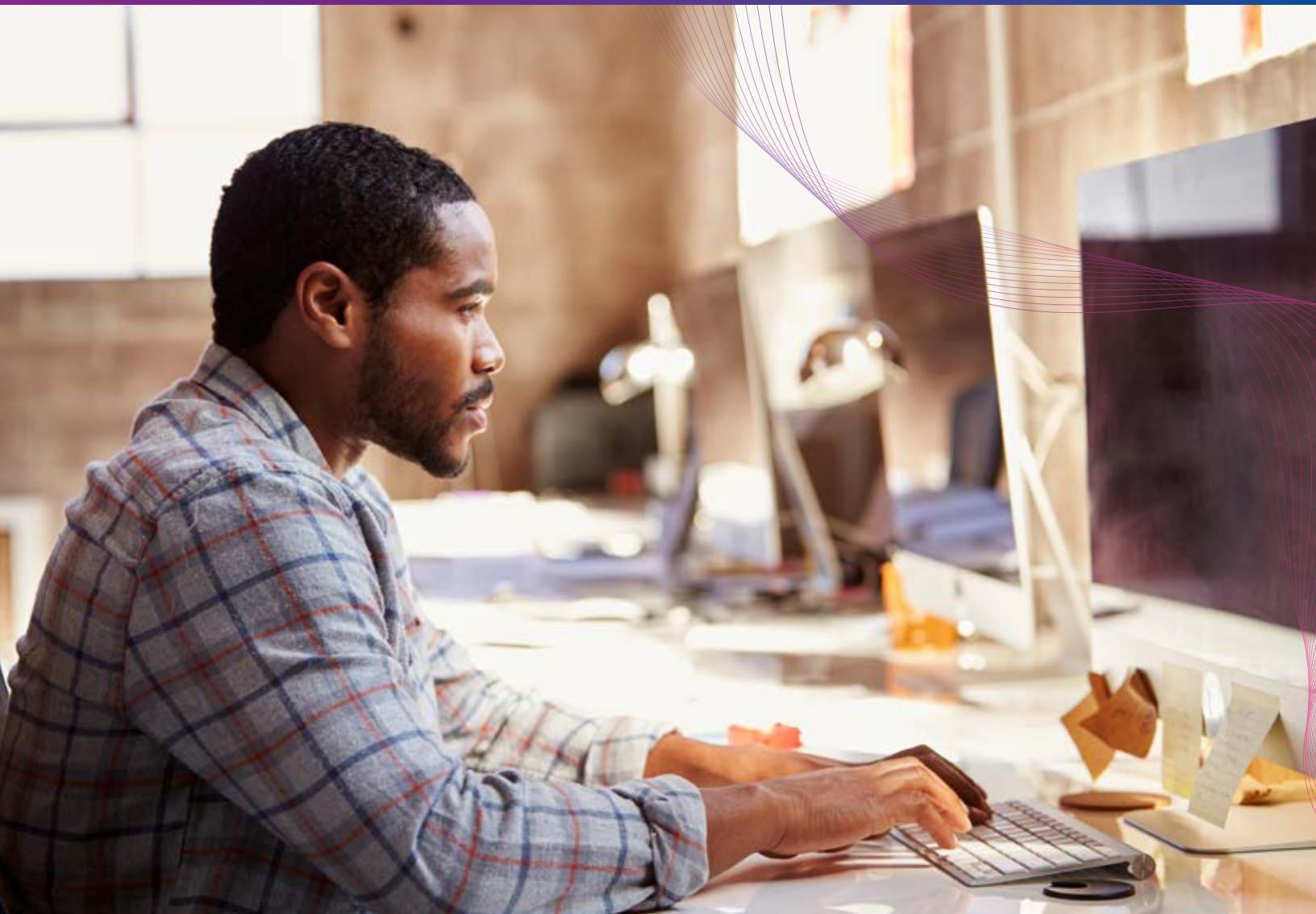
**MAKE THE CASE.** Identify strong anecdotal information about how data quality issues are impacting agency operations and service delivery. A cost-benefit analysis can include estimated savings from reduced data storage needs and staff hours saved because of accurate, automated data. Use this information to define the business case, obtain executive sponsorship, and promote understanding throughout the organization about the importance of data quality.

“Don't look at dealing with bad data just for data's sake,” says Wright. “Instead, look at the bigger goal, whether it's simply enabling online self-service functions or making big improvements in the lives of children.”

**IDENTIFY FUNDING SOURCES.** The agency's IT budget may include funding for system modernization, either from traditional revenue sources or targeted federal grants.

**FIND A GOOD FIRST PROJECT.** A modernization project provides a good entry point for improving data quality.

“If you can tie it to a specific business outcome, then the data quality work has a higher chance of being funded,” says Takai.



Another approach is to begin with a pilot project that applies the selected data quality solution to the most critical business or service problem caused by poor data. Bertolini notes that a small project may also be easier to accomplish within budget limitations.

“You can make progress on data quality and avoid concerns that all data needs to be cleaned at the same time and that it will cost a lot of money,” he says.

**LOOK FOR REPEATABILITY.** For any data improvement, look for ways that it can be standardized and repeated across multiple processes. For example, a data validation feature can enforce standards when a citizen enters an address online or an employee writes it down on a paper form.

**ESTABLISH DATA OWNERSHIP.** Begin by supporting a sense of ownership for the data within departments and programs. “When the owner understands all the ways their data is being used and what outcomes are being driven from it, then you naturally get a better appreciation of the need for quality data and what it will take to get it,” says Takai.

“There can be a lot of concern about letting go of control over data management, which leads to questions about who actually

determines what is quality data,” says Wright. “You can’t separate a deep understanding of the meaning and uses of the data from efforts to make it consistent and easier to access.”

**HELP EMPLOYEES ADOPT A CULTURE OF DATA QUALITY.** Agency leaders should provide ongoing training and communication about data quality to all employees. Help them understand how their role in data quality makes a difference for the agency and client or community outcomes.

## Data Quality to Maximize the Impact of Modernization

Today, concerns about the impact of poor information and inefficient processes are more urgent in the face of tight budgets, reduced revenues, and continued remote work. Finding ways to continue modernizing systems is part of the solution to these challenges. A key component of that modernization is improving data quality so it can better inform decisions, enable automated workflows, and reduce costs. Most of all, this combination will help governments improve service delivery to constituents—especially in these fast-changing and uncertain times.

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