



# INFORMATION QUALITY: THE FOUNDATION FOR JUSTICE DECISION MAKING



United States  
Department of Justice

## A SIGN OF THE TIMES: INCREASING ELECTRONIC DATA EXCHANGE INCREASES THE NEED FOR INFORMATION QUALITY

Recent events, such as terrorist threats and catastrophic natural disasters, have revealed a critical need for increasing information sharing across disciplines, jurisdictions, agencies, and geographic areas. As these needs are addressed by the application of new technologies and cross-agency interaction, it is also imperative to address the quality of the information that the justice system depends on for sound decision making.

## WHAT IS INFORMATION QUALITY?

Few professionals in any discipline will dispute that “good information is good business.” But what constitutes “good,” or “quality,” information? Conventional wisdom typically equates good information with accurate information. Good information, however, should also be timely, reliable, and complete. Today, information quality (IQ) is understood to be a multidimensional concept that encompasses critical relationships among multiple attributes, such as timeliness, accuracy, relevancy, and others. Together, these attributes contribute to the validity of the information. Quality information is the cornerstone of sound agency decision making and inspires trust in the justice system and in the law enforcement entities that use information. Such information enables agencies to perform their jobs efficiently and effectively.

## WHAT PROBLEMS ARISE FROM POOR INFORMATION QUALITY?

The typical triggers for poor information quality are commonplace business challenges such as incomplete records, delays, failure to update record information, data-entry mistakes, or improper releases of information. Additionally, technical issues, information volume, and the widespread availability of data may lead to IQ concerns.

The routine nature of day-to-day business processes underscores the potential for inadvertent generation of inferior IQ. As data is increasingly shared and becomes more readily and rapidly accessible, justice agency control over IQ becomes a bigger challenge.

Poor information quality can be harmful to the individual, the community, and the justice entity. Failure to actively and continuously evaluate and improve IQ in justice-related information sharing practices may result in harm or injustice to individuals, lawsuits and liability, population of other agency databases with inaccurate data, public criticism, inefficient use of resources, or inconsistent actions within agencies.



The following scenario demonstrates why quality information is critical for justice information sharing.

On a busy holiday weekend, a police officer pulls over a speeding driver. After checking whether the vehicle is stolen and whether there are warrants for the registered owner, the officer approaches the vehicle. The driver presents his driver's license, and the officer observes that there are two young girls and an adult female in the car. The officer runs a routine driver's history check and a search of the state's criminal history file. She discovers that the driver has recently been released from prison after serving a term for third-degree sexual conduct with a child. The conditions for parole indicate that the driver is not to be in the company of minors. The officer is able to make an arrest because an appropriate amount of justice information was accessible, complete, and available at the time it was most critical.

More scenarios on page 4.

## A FRAMEWORK FOR INFORMATION QUALITY

In the justice system, the notion of good information must expand beyond accuracy, timeliness, and completeness to include all of those attributes that, when taken together, provide a sufficient foundation for good justice decision making.

Today, IQ is well accepted as a multidimensional concept by subject-matter experts in academia, industry, and government who have developed models of the necessary attributes for IQ. One such model, shown in the following table, is based on research conducted at the Massachusetts Institute of Technology (MIT).<sup>1</sup> MIT's Information Quality Dimensions demonstrate these multiple dimensions, expanding the conventional view of information quality to include attributes such as accessibility, security, ease of manipulation, and other attributes that work together to produce quality information for good justice decision making.

## HOW DOES INFORMATION QUALITY INTERSECT WITH PRIVACY?

Information quality plays an extremely important role in the protection of privacy rights of individuals. Issues of privacy and information quality are inherently linked. Both concepts share multiple information attributes that influence appropriate treatment of personally identifiable information. Agency privacy and civil liberties policies should address information quality in concert with privacy and civil liberties issues. Information quality is specifically enumerated as an issue to be considered in the Fair Information Principles<sup>2</sup>—Data Quality Principle:



### DATA QUALITY PRINCIPLE

Personal data should be relevant to the purposes for which it is to be used and, to the extent necessary for those purposes, should be accurate, complete, and up to date.

### MIT'S INFORMATION QUALITY DIMENSIONS

<b>Accessibility</b>	The extent to which data is available or easily and quickly retrievable.
<b>Appropriate Amount of Data</b>	The extent to which the volume of data is appropriate for the task at hand.
<b>Believability</b>	The extent to which data is regarded as true and credible.
<b>Completeness</b>	The extent to which data is not missing and is of sufficient breadth and depth for the task at hand.
<b>Concise Representation</b>	The extent to which data is compactly represented.
<b>Consistent Representation</b>	The extent to which data is presented in the same format.
<b>Ease of Manipulation</b>	The extent to which data is easy to manipulate and apply to different tasks.
<b>Free of Error</b>	The extent to which data is correct and reliable.
<b>Interpretability</b>	The extent to which data is in appropriate languages, symbols, and units and the definitions are clear.
<b>Objectivity</b>	The extent to which data is unbiased, unprejudiced, and impartial.
<b>Relevancy</b>	The extent to which data is applicable and helpful for the task at hand.
<b>Reputation</b>	The extent to which data is highly regarded in terms of its source or content.
<b>Security</b>	The extent to which access to data is restricted appropriately to maintain its security.
<b>Timeliness</b>	The extent to which information is available in time to perform the task at hand.
<b>Understandability</b>	The extent to which data is easily comprehended.
<b>Value-Added</b>	The extent to which data is beneficial and provides advantages from its use.

<sup>1</sup> Fisher, Craig, Eitel Lauria, Shobha Chengalur-Smith, and Richard Y. Wang, *Introduction to Information Quality*, Massachusetts Institute of Technology Information Quality Publication.

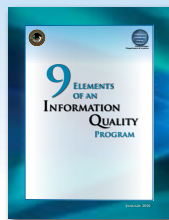
<sup>2</sup> Organisation for Economic Co-operation and Development (OECD), Fair Information Principles (FIPs), [http://it.ojp.gov/documents/OECD\\_FIPs.pdf](http://it.ojp.gov/documents/OECD_FIPs.pdf).

## WHAT CAN YOU DO ABOUT INFORMATION QUALITY?

- **Make information quality a priority.**  
Make it clear that you and your organization are committed to improving and controlling information quality. Raise awareness among personnel by measuring the costs, missed opportunities, and decreased agency effectiveness caused by poor information quality. Educate leaders regarding their role in implementing policies, communicating their commitment to information quality, and providing resources to make it happen.
- **Establish information quality as a program.**  
Your commitment to IQ should be reflected in your organization's vision, mission statements, and strategic plans. Achieving high-quality information is the result of a strategic and intentional process—an information quality program. Establishing an IQ program helps to ensure on a continuous basis that information is accurate, timely, complete, and secure.
- **Assess the level of information quality in your organization.**  
You should proactively conduct self-assessments to measure information quality and identify and address areas that need improvement. Such assessments should be part of a continuous process.
- **Move from “need to know” to “write to share.”**  
It is important that you and the employees in your organization understand and acknowledge that any information that is written or entered into your system has the potential to be accessed or shared in an internal or external justice information sharing environment. Thus, you and your employees should write or enter the information according to the tenet “write to share.”
- **Hold the entire organization accountable for information quality.**  
You should build accountability mechanisms and processes into your routine business practices so that every person in the organization knows his or her responsibility and is held accountable for ensuring information quality.

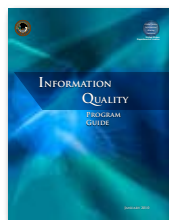
## GLOBAL INFORMATION QUALITY SERIES

In addition to this primer, the following resources offer practical guidance on how to make IQ a priority and how to establish and implement an agency-wide IQ program.



### 9 ELEMENTS OF AN INFORMATION QUALITY PROGRAM

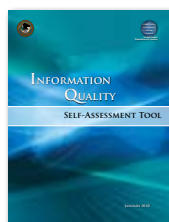
Developed for high-level, managerial, and administrative personnel within an organization, *9 Elements of an Information Quality Program* introduces the nine key steps of an agency-wide IQ program.



### INFORMATION QUALITY PROGRAM GUIDE

The *Information Quality Program Guide* is intended to help managers of justice information develop an information quality program for their organizations and is designed to support those who must analyze their justice entity's information and determine what is needed to ensure good quality information. The Guide features a step approach to the development and implementation of an agency-wide IQ program by leading practitioners through the:

- Establishment of IQ as an agency-wide program.
- Identification and analysis of agency justice events and products.
- Application of standard and customized IQ dimensions.
- Completion of an IQ assessment.
- Implementation and follow-up.



### INFORMATION QUALITY SELF-ASSESSMENT TOOL

A mandatory step for any agency in developing an IQ program is the completion of an information quality self-assessment—the evaluation of agency information and reports associated with justice events. The *Information Quality Self-Assessment Tool* will help an agency determine its relative level of information quality and benchmarks for evaluation, improvement, and accountability. Using this tool can:

- Break down the flow of information in a justice event into the multiple phases of an information life cycle.
- Apply IQ dimensions to each point along this information continuum.
- Uncover gaps in roles, responsibilities, policies, procedures, and technology that beget information quality problems.
- Implement information quality in practice.
- Enhance overall understanding of the effects that a justice agency's business processes—related to information collection, maintenance, management, dissemination, and disposition—have on information quality.



## INFORMATION QUALITY SCENARIOS

The following are examples of commonplace events that can occur in any jurisdiction across the country. Although these describe situations of poor IQ, it is important to note that every day, justice practitioners also receive quality information in a timely manner and, based on that information, have been able to effectively perform their jobs. Had IQ issues in the following scenarios been addressed, each one would likely have had a positive outcome.

### ACCURACY

- A 27-year-old man with mental retardation is found severely beaten near his home because his address, a group home for the disabled, was mistakenly entered in an Internet registry as the residence of a child molester.
- A middle-aged job applicant was unable to pass an employment background screening because a prison guard mistakenly typed in the social security number of an incarcerated convicted murderer as the job applicant's number.

### TIMELINESS

- A restraining order extension was not reported to a statewide database, causing the order to appear "expired." Ultimately, when police responded to a domestic disturbance report, they were unable to



confirm the restraining order and unable to make an arrest, endangering an at-risk mother and child.

- A court clerk failed to promptly enter a recall of an arrest warrant in the warrant database. As a result, a wrongful arrest was made during a routine traffic stop.

### COMPLETENESS

- A failure to enter complete terms of a restraining order allowed a noncustodial parent to abduct a child.
- A clerk failed to enter complete violent-history information on a defendant. This resulted in insufficient security precautions and the death of a judge in the courtroom.

## ABOUT GLOBAL

The U.S. Department of Justice's (DOJ) Global Justice Information Sharing Initiative (Global) serves as a Federal Advisory Committee to the U.S. Attorney General on critical justice information sharing initiatives. Global promotes standards-based electronic information exchange to provide justice and public safety communities with timely, accurate, complete, and accessible information in a secure and trusted environment. Global is administered by the U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Assistance.

DOJ's Global Advisory Committee (GAC) recommends that local, state, tribal, and federal justice decision makers make information quality a priority. GAC specifically advocates the active and continuous improvement of data and information quality efforts in all information sharing activities. The U.S. Department of Justice and Global member organizations are committed to helping you to improve information quality by providing further resources that will be made available online at:

[www.it.ojp.gov/iq\\_resources](http://www.it.ojp.gov/iq_resources).

## ADDITIONAL RESEARCH

Fisher, Craig, Eitel Lauria, Shobha Chengalur-Smith, and Richard Y. Wang, *Introduction to Information Quality*, Massachusetts Institute of Technology Information Quality Publication.

English, Larry P., *Improving Data Warehouse and Business Information Quality*, INFORMATION IMPACT International, Inc.

Wang, Richard Y., Yang W. Lee, Leo L. Pipino, and Diane M. Strong, "Manage Your Information as a Product," *Sloan Management Review*, Massachusetts Institute of Technology, Summer 1998, Volume 39, Number 4.

English, Larry P., INFORMATION IMPACT International, Inc. "The Essentials of Information Quality Management," *DM Review*, September 2002.

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