



Quality and the Missing Puzzle Piece

Data Integration Scenarios

Quality chaos?

It's only natural...

At its core, quality control is all about quality consistency. Machine by machine, line by line, plant by plant, or process by process, the immediate insights into the consistency (or not) of your output helps managers meet customer expectations, achieve performance objectives, and fulfill compliance and/or regulatory requirements.

Unfortunately, in the real world of mergers, multiple plants and mixed computing platforms, quality consistency is often replaced by quality chaos. Growing businesses become the victims of our own success, accumulating different tools and techniques that produce confusion when everyone—from the shop floor to the executive suite—wants clarity and control.

The remainder of this paper is dedicated to resolving the quality control puzzle: how can businesses like your own create one consistent quality picture when so many of your individual quality pieces don't fit together? After reviewing the most common causes of data dis-integration, *Quality and the Missing Puzzle Piece* will propose a practical solution for data integration that provides huge quality returns without imposing expensive “rip and replace” costs.

How did we get **here?**

First, take a deep breath. No one person—and no one group of people—is to blame for the proliferation of quality data pieces that do not fit together.

Over time, successful enterprises have aggregated different tools, different software, different lines, and different plants, each speaking its own language the others don't understand.

While the dis-integration of quality control is nobody's fault, it is everybody's problem. With the rapid increase of globalization and the outsourcing of almost all component parts, a growing business must take a hard look at its quality landscape to achieve centralized visibility and control, and take corrective action now.

So what's standing in the way? A complex mix of processes, people, and technology that have emerged independently and now defy consistent data collection and quality control.

PROCESSES

Cause: Mergers and acquisitions

Consequence: Most current manufacturers represent a heterogeneous blend of multiple locations, different databases, various quality systems and even diverse IT structures. Such variation impedes visibility by making it difficult to aggregate data and compare results.

Cause: Legacy processes

Consequence: Designed to provide immediate feedback on local quality conditions, the previous generation of quality controls was never designed to “speak” to or with other quality controls. Today, many such systems are unable to integrate with others, and the people who control these systems may be unwilling to share vital information they feel obligated to control.

Cause: Outsourcing

Consequence: Many contemporary manufacturers are assemblers of components acquired through extensive supply chains; as quality control moves upstream, downstream control becomes more difficult.

Snack Food Producer Earns Loyalty

Big picture:

One of the largest snack food producers in the U.S. faced resistance from employees of an acquired plant who viewed the company's centralized quality system with skepticism.

Puzzle pieces:

Excel®, Access®, SharePoint®, SQL Server®

Successful solution:

Before rolling out the quality software in the acquired facility, the company invited its new employees to its main plant where they could experience the software in action. Once they saw how much time the software saved and how much easier their jobs could be, they embraced the software deployment.

Results:

The snack food producer **saved more than \$1 million** in product waste in the first year alone, and **reduced customer complaints by 30%**.

PEOPLE

Cause: Corporate “feudalism”

Consequence: Different plants and locations employ different teams, each of which has evolved its own culture. Unfortunately, it's often human nature to favor parochial habits over the greater good; too frequently, “change” is what people do only after exhausting all other options.

Cause: Conflicting territory

Consequence: Who owns quality data – IT or Quality? When these professionals insist on holding on to their respective siloes, the executives who manage them (and the line operators who rely on their judgment) fail to get one integrated system for visualizing and controlling quality.





TECHNOLOGY

Cause: Coexistence of the old and new

Consequence: Older equipment is commonly not replaced, but complemented by new equipment. Over time, side-by-side production lines contain a mix of old and new machines manufacturing the same products. Different processes and operating nuances require varying controls to ensure the same output, resulting in different metrics, which can make comparative analyses difficult or impossible.

Cause: Conflicting data formats, complex data chain

Consequence: It's the "Tower of Babel" for the digital age—a proliferation of data formats, spread across a broad data chain. Without a common language, it seems impossible to create an integrated quality picture under centralized control.

Data Source Types

It's easy to sympathize with IT and Quality professionals when one acknowledges the extraordinary range of data sources, including:

Data collection devices:

- Scales
- Hand-held devices
- Vision systems
- Coordinate Measuring Machines (CMMs)
- Programmable Logic Controller (PLC) devices/sensors

Database standards:

- Proprietary
- Third party designed
- External/vendor

Software formats:

- Flat files
- Streaming data
- System transfer
- OPC servers

Fix everything – without fixing **ONE thing:** The Quality Hub

Here's the dilemma: You can't achieve meaningful quality control without consistent visibility into all of your quality data sources. But it's not practical to impose ONE standard—by ripping and replacing all your equipment, or via expensive hardware and/or software upgrades—for all your different lines, facilities, and supply chain vendors.

Fortunately, you don't have to. Instead, you can lead all your components toward one point of control: a Quality Hub that centralizes data, creates one point of visibility and produces uniform metrics and reporting protocols for effective decision-making and validation.

The Quality Hub serves as an intelligent clearing house that can accept data from multiple sources, while reporting activity through a consistent set of metrics. By combining input flexibility with output standardization, the Quality Hub delivers insights into manufacturing operations and quality improvement opportunities across the entire enterprise. Effectively, the Quality Hub allows global quality oversight and helps management identify the greatest opportunities for quality improvement and defect reduction on a global scale.

The virtues and values of a Quality Hub efficiently resolve the urgent challenges of the quality control puzzle

General Cable Gets Global Consistency



Big picture:

As a Fortune 500 manufacturer with more than 14,500 employees in 26 countries, General Cable needed to control plant-to-plant process variations.

Puzzle pieces:

57 manufacturing facilities, over 100 monitoring applications and numerous collection devices including micrometers, microscopes, scales, cameras and more.

Successful solution:

General Cable built its Quality Hub with InfinityQS ProFicient, standardizing processes across its supply chain while increasing visibility and production consistency.

Results:

The company **gained control of its raw material usage, and reduced operational inefficiencies** associated with rework, giveaway, production delays and customer complaints.

PROCESSES

Virtue: Standardization while maintaining flexibility

Value: Accepting different data formats from a plethora of machines is impractical if not impossible. The Quality Hub acts as an intermediary translator that accepts device inputs in their existing form without requiring modification to their native formats, yet still produces reports and dashboards that are standardized in their representation.

Virtue: Integrate data globally

Value: The Quality Hub gathers data, regardless of location, without requiring upgrades to existing data collection systems or the installation of new devices for communicating with a new quality system; its flexibility is inherently scalable.

Virtue: Speed

Value: When quality systems remain fragmented, gaining enterprise-wide insights means manually reconciling spreadsheets and other reports. The Quality Hub automates data collection from every source, providing instant insights on current and historical trends.

Virtue: Eliminate IT and Quality conflict

Value: The Quality Hub does not require either IT or Quality to change the ways in which they prefer to work. Both their systems can remain in place.

“The implementation of InfinityQS ProFicient is **creating visibility** across our global manufacturing base and **elevating the level of trust in our data.**”

— Zack Tran, project manager, General Cable



PEOPLE

Virtue: Overcome isolated quality “fiefdoms”

Value: In isolation, each Quality team can only provide meaningful management to local processes. Once integrated into the Quality Hub; however, the data each team produces can contribute to an executive understanding of overall enterprise performance. Through the Quality Hub, executives can compare equipment, lines, and plants; identify weaknesses to overcome and best practices to amplify; and target the most optimal opportunities for improvement.

Virtue: Timely executive insight and action

Value: Executives gain visibility without having to call meetings among far-flung Quality staffers. Armed with up-to-date information, they can take direct action faster and with greater confidence, identifying with pinpoint precision areas in the enterprise where quality improvement activities would most benefit the organization.

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TECHNOLOGY

Virtue: Centralized database

Value: The Quality Hub offers one point of visibility and control without disrupting current systems.

Virtue: Reconciliation of all data, regardless of source

Value: Buying, installing and maintaining unique drivers for each data collection source would be time-consuming, prohibitively expensive and unnecessarily complicated. The Quality Hub provides connectivity tools unrestrained by data formats. Instead, these tools touch common communication protocols that almost all measurement devices leverage, such as serial streams, TCP/IP protocols, and/or ASCII files, making it a flexible and efficient way to gather data.

Virtue: Mobile and BYOD enabled

Value: In a world where informed decisions must be made quickly by professionals who could be located anywhere, mobile enablement is a necessity. The Quality Hub can both collect data and share dashboards from and on any mobile device.

Virtue: Available on-premise, through license or via the cloud.

Value: The Quality Hub can be deployed on your own business terms, through whichever means of access best fits your quality needs and network standards.

“We can now assimilate data from different systems and device locations into **one, centralized hub for easy analysis and decision making.**”

— Jack Kraemer, president and COO, GSI Technologies



GSI Technologies Drive Improvements

Big picture:

GSI Technologies, a manufacturer of functional printing and industrial graphic products, outgrew its in-house Quality systems, threatening the high levels of quality and service its customers relied upon.

Puzzle pieces:

ERP, document control, inspection equipment, and data collection devices such as scales and multi-meters.

Successful solution:

Through InfinityQS ProFicient, GSI built a Quality Hub capable of configuring data for all the unique parts the company used and representing that data in the control charts their end-users required.

Results:

Plant floor operators now have **real-time visibility** for proactively tackling spec challenges, while managers gained **improved data and analytics** for product development, and **more efficient** ways to demonstrate regulatory compliance.

Get effective integration without expensive standardization

The Quality Hub is not a speculative solution, but a practical reality for 2,500+ InfinityQS clients worldwide. With InfinityQS, our clients can create and manage a Quality Hub that integrates any number of data sources and quality control pieces into one centralized platform for management intelligence, insight, and innovation.

See how InfinityQS can deliver your own Quality Hub, effectively and efficiently, **with a one-on-one demonstration.**

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About InfinityQS International, Inc.

InfinityQS International, Inc.® is the global authority on Manufacturing Intelligence and enterprise quality. The company's Manufacturing Intelligence platform, ProFicient, delivers real-time visibility from the shop floor, across the enterprise and into the supply chain, allowing top manufacturers to take control of quality. Powered by a centralized statistical process control (SPC) analytical engine, ProFicient manufacturing quality software leverages Manufacturing Intelligence to help global manufacturers improve product quality, decrease costs, maintain compliance and make smarter, data-driven business decisions. Headquartered near Washington, D.C., with offices in Seattle, London, Beijing and Shanghai, InfinityQS was founded in 1989 and now services more than 40,000 active licenses with over 2,500 of the world's top manufacturers including Kraft Foods, Ball Corporation, Boston Scientific, Graham Packaging and Medtronic.

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