



How to Accelerate Quality Improvement through Digital Containment

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How to Accelerate Quality Improvement through Digital Containment

Quality directly impacts all aspects of an organization, [costing as much as 40% of operating expenses](#) in the form of nonconformities, inefficient processes and lost opportunities for sales revenue.

When a quality issue occurs, companies react quickly, implementing containment and inspection plans designed to quarantine the issue and reduce the cost of recurrence. But because of the reactive nature of containment, quality improvement can be slow and often incomplete.

Inconsistent training across inspectors, high turnover rates among containment companies, and inappropriate inspection methods that don't catch all defects can all lead to higher than necessary costs, even with an ongoing inspection.

To tackle this, many companies are turning to a digital-first approach, leveraging advanced technologies that significantly improve containment and reduce sales and operations costs. Let's take a closer look at what digital containment does, how it impacts the organization, and how much money it can save you when implemented correctly.



What is Digital Containment?

Digital containment is an innovative approach to inspection and quality services that delivers process transparency, real-time data and predictive reports with actionable data. The result is a more comprehensive, data-driven approach to inspections that both reduces the time it takes to contain a disruption and directly addresses the risk of future issues. There are several roles technology can play in this process, including:

Digital Records for All Inspections

By shifting inspections to a digital platform, all records are stored in a central location that is immediately accessible to all decision-makers, engineers, and containment providers whenever they are needed.

Instead of starting from scratch whenever a quality disruption occurs, you can more efficiently learn from past mistakes and improve quality over time. If you work with a digital quality containment provider, you can further learn from the efforts of other companies who have successfully addressed issues similar to yours.



Evaluation of Patterns with Big Data

Data is valuable, but it's also massive. In the past, it took large teams of people months or even years to untangle the hidden value in the data collected by your front-line employees, sensors, inspectors and more.

Today, not only is all data instantly captured by a network of devices and applications, but it can be rapidly evaluated using Machine Learning and AI-based systems designed to evaluate large data sets in real-time. The result is the ability to see patterns as they emerge and address them before they become major issues.

Real-Time Monitoring and Inspection Management

IIoT and wearable devices make it possible to monitor almost any aspect of a manufacturing plant seamlessly. This provides several benefits, including:

- ✓ Actionable data about operations that can be leveraged to improve efficiency and reduce the risk of disruption.
- ✓ Objective measurement of worker performance on the floor - including stress levels.
- ✓ Quicker response times if there are issues in production, ideally reducing the number of parts impacted.
- ✓ Centralized management of inspection processes with digital records to ensure higher levels of accuracy and full traceability.



Behavioral Prediction

While Sales has been leveraging data to respond to key events throughout the calendar year, Operations is only just unlocking the power of predictive analytics. There are now several ways you can leverage machine learning and big-data analysis to evaluate behavioral patterns that influence quality in your operations. For example:

- ✓ **Preparing for Seasonal Shifts** - Data can provide insights not only on how operations changes throughout the year, but in how employee performance changes at different times of the year. Going into the end of the year holidays, for example, companies know to double shield quality as people start thinking more about life and less about work. After the holidays, increased fatigue can lead to distraction. Data can help identify how much of an impact these things have and how to respond appropriately.

- ✓ **Industry-wide Changes** - If a major change occurs that could influence your production line, behavioral prediction can help identify the impact it will have on key elements.

- ✓ **The Ripple Effect of a Major Disruption** - A significant recall at the OEM level or a labor disruption can have a massive impact downstream. With the right technology, you can both analyze previous instances to see what risks you might face and predict the potential impact on your front line of such a disruption.



Better Utilization of Data from Existing Equipment

Organizations are investing in technology that extracts valuable data from existing equipment. It's increasingly possible to monitor and respond to real-time conditions on the floor, both to tackle issues as they occur and prevent future ones from developing. Specific examples include:

✓ Scanners in warehouses that provide protrusion monitoring, navigation support in vehicles to avoid accidents, and improper storage checks.

RFID technology for improved monitoring of doors and other entryways with safety interlock switches. These switches often lead to safety issues that IIoT devices can help address.

✓ Process control with machine vision and real-time monitoring to inspect and analyze parts and systems automatically with multiple cameras.

Machine learning to monitor and adapt to changing conditions for both human and co-bot operators on the front line.

✓ Wearable technology in the form of smartwatches, harnesses and even AR glasses to actively monitor employees for shifts in energy, stress, and performance levels that could impact safety or quality

Improved Training for Employees Going into a Facility

Digital training is an important element of digital containment and inspections. By implementing e-learning for all workers, it is easier to ensure a higher degree of compliance through digital checklists and work instructions. Containment employees are already trained when they enter a facility, with safety and compliance embedded into the process.

For your employees, this has a similar impact, ensuring a higher quality of Standard Work and a centralized method by which to provide new instructions or address concerns.

The Quality Impact of a Digital-First Approach

By implementing a digital-first approach to quality that relies on data and advanced IIoT devices and inspection tools to evaluate and isolate disruptions, companies benefit in a number of ways. Well beyond the more efficient processes, they benefit from

Significantly Less Friction

Using technology that centralizes training, reporting, and data analysis, it is easier to both manage and monitor the inspection process. This allows SQAs to get back to work and trust in a smarter inspection system. It frees time for valuable quality engineering staff and reduces the risk of oversight issues entirely dependent on human error in the past.

Building a Proactive Plan for High-Risk Parts

There are significant variations in containment approaches based on the complexity, cost, and handling of a part. BICEP parts, for example (Body, Interiors, Chassis, Engine, and Powertrain) are the core components of a vehicle. They are also incredibly costly and a major quality disruption can cost hundreds of thousands of dollars if it impacts any of them.

Proactive technology-based inspection plans that leverage machine learning to predict issues before they occur allow companies to preemptively check for and address potentially costly quality issues. At the same time, the same tools allow for iterative plans that capture the underlying causes of recurring quality issues or unresolved disruptions that can impact a company for months or even years.



Learning from the Past and Preparing for the Future

PTI maintains a full library of every digital inspection we've ever performed. Each record includes the inspection method, rework method, the effectiveness and efficiency of each of these, and a significant volume of data that has been fully analyzed to optimize our response to a specific quality disruption.

Manufacturing plants benefit from this data by collecting a greater volume as inspections are completed, allowing them to investigate commonalities, address previously hidden concerns, and even learn from industry data from other customers. From a containment perspective, it is now possible to quickly analyze a situation and find similar causes and resolutions in the data, streamlining the creation of a containment plan and improving overall results.

Increased Traceability in All Aspects of the Business

By having actionable data for all aspects of the containment process, it's possible to vastly improve senior management and OEM visibility into an inspection. With every inspection recorded and every machine and employee monitored, data is captured across the organization. That data can then be quickly organized and shared with key stakeholders throughout the organization to improve and expedite decision making.

From a quality perspective, it also helps find defective parts and root causes faster. If an issue recurs or a part makes it through inspection and to a customer, a digital containment system makes it much faster to isolate the problem and respond.



5 Tangible Impacts of a Smarter Inspection Model

When properly implemented, a smarter inspection model provides several immediate and measurable benefits, including:

1

Improved Quality for All Parts - Because you are measuring processes and equipment throughout the front line, you will see sweeping quality improvements for all parts, not just for those being inspected. With fewer disruptions and greater visibility into operations, everything improves.

2

Fewer Quality Disruptions - Improved training, systems in place to catch defects before they leave the line, and a smarter inspection process in place, fewer quality disruptions will occur.

3

More Time for Supplier Quality Engineers - When your containment partner leverages a fully digital platform for inspections and overall quality disruptions are reduced, your SQA Engineers can spend more time focusing on what will help create value in the organization. Continuous improvement becomes a reality instead of an oft pushed-aside project.

4

A Scalable Solution when Disruptions Occur - By using digital tools to expedite training, organize inspections, and collect and share data, your containment team will be better situated to scale if a major disruption occurs. The ability to act quickly and maintain a high level of accuracy is incredibly important to limit the impact of a quality issue.

5

Immediate Access to Vital Information for Decision Makers - Stakeholders need to know what is happening, why it happened, and what can be done to prevent a problem from recurring, as quickly as possible. Digital inspections provide this insight in real-time, putting power in their hands to make quick decisions when it matters most.



Implementing a Quality System that Always Improves

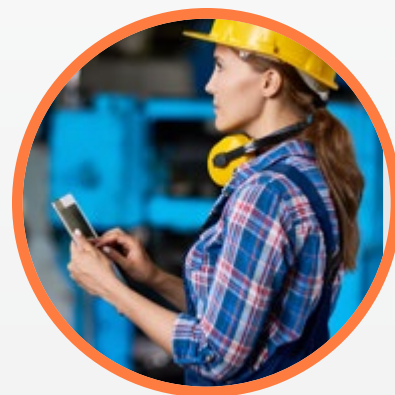
Containment is a necessity that all organizations deal with at some point. A proactive, digital quality system can ensure that containment isn't just another cost center, though. It becomes a value-add to your entire organization.

PTI has invested to build a seamless digital quality system that eliminates friction and allows you to go back to your jobs improving operations and creating value, not managing a containment company.

To learn more about how PTI leverages cutting edge Industry 4.0 technology to deliver digital-first containment to our customers, contact us from the link below.

[Request a Demo](#)





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