

ProFicient on Demand: Deployment & Adoption Best Practices

Achieving the Excellence Loop





Table of Contents

Contents

Executive Summary	3
Deployment & Adoption	5
Support & Administration	10
Services	11
Key Performance Indicators	12
User Experience	18
Deployment Model	21
Achieving Return on Investment	22
Beyond Critical KPIs	23
Additional Resources	26



Executive Summary

For manufacturers, process monitoring is a regular part of quality efforts—but it requires extracting large volumes of data from a variety of incompatible measurement devices and systems. This can be both time- and labour-intensive.

Manufacturers can make process monitoring easier by pulling all that data into one place. ProFicient on Demand delivers enterprise-wide visibility into quality performance, driving faster return on investment.

ProFicient on Demand (PoD) features a centralized data repository that collects and reports Key Performance Indicators (KPIs). Beyond process monitoring, you gain visibility into ways quality can be improved, how processes can be operated more efficiently, and how productivity can be increased. The result? Improved product quality, realized cost savings, and happier customers.

PoD provides all these benefits —and more. Using the best practices and helpful hints provided in this guide, we can ensure that your ProFicient on Demand deployment is successful, resulting in improved product quality and process performance, as well as a tangible Return on Investment (ROI).

Six Secrets to Success for Manufacturers

The six secrets to quick deployment with immediate results are:

Centralized leadership. Appoint a project leader who has the authority to make decisions and set direction. Having a point person on the client side helps build consensus and simplifies communication.

Fixed scope. A clearly defined scope that everyone is working toward the same goals within agreed-upon timeframes.

Available resources. When we develop your solution, we identify the resources needed in each deployment phase. To make sure the deployment progresses smoothly, your experts should be available when their input and help is needed.

Participation from all departments. Involving critical departments—such as quality management and IT—in pilot development ensures all critical input is considered in your solution design.

System access. Access to relevant computers, networks, and systems ensures that InfinityQS engineers can perform the tasks needed to deploy your solution as quickly as possible.



Standardization. Standardization streamlines deployment efforts and promotes agreement on quality goals. Key aspects of standardization include:

- Naming conventions
- Measurement device setup
- Measurement procedures
- Policies
- User permissions
- Master data

Getting Results Fast

A successful deployment takes advance thought and preparation, and we want you to see the benefits of ProFicient on Demand as soon as possible. We hope this guide will help you prepare for your PoD deployment—and trigger some thinking about what you want to achieve.



Deployment & Adoption

Recommended Best Practice

A Focused, Phased, Agile Deployment Approach

Manufacturers frequently target critical KPIs to ensure compliance to quality standards and process improvement goals. To support manufacturers' specific quality indicators, InfinityQS has developed an agile deployment approach that enables us to deploy functionality in sprints. The first sprint focuses on your critical KPIs. Examples of quality measurements that our manufacturing clients frequently target include weight, length, volume, temperature, and the like. Subsequent sprints can focus on automating data collection or expanding focus on additional quality indicators—as you fine-tune your quality monitoring and improvement processes.

Benefits

- See ROI quickly by prioritizing and tackling critical quality and process improvement goals, including:
 - > Focus on requirements, such as measuring critical product features
 - Quickly deploy and scale KPI-targeted functionality to all sites
 - Roll out enhanced quality improvement processes when ready
- Identify differences in data collection and quality monitoring processes that can be standardized for improved efficiency
- Eliminate redundant data entry and hardware installation by establishing a central data repository for all sites
- Build knowledge and experience with PoD as the deployment progresses

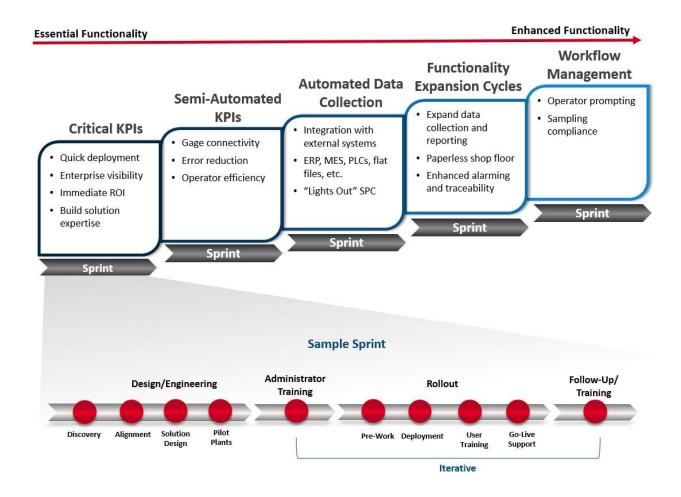


Agile Deployment Phases

To ensure that your quality and process improvement goals are met, the first deployment sprint focuses on your specific KPIs. Each sprint provides a framework for requirements gathering, solution design, training, and deployment.

For manufacturers with more than one plant, functional modules can be deployed simultaneously to multiple plants—which typically means a dramatic reduction in overall time-to-completion. Our approach is shown below, and a brief explanation of each phase is described on the following page.

Functional Deployment Modules for Manufacturers





Design/Engineering. InfinityQS or Service Provider engineers help you develop a standardized solution that meets your critical KPIs, along with project goals, scope, and deliverables. During the discovery phase, InfinityQS or Service Provider engineers will talk with you about your quality objectives and how to achieve them. Based on discovery findings, we develop a formal set of project goals to ensure alignment and manage expectations between your team and the InfinityQS or Service Provider team. Solution design is based on the discovery and alignment processes; a pilot project is conducted to test and validate system configurations.

During this phase, we encourage you to have at least one internal administrator attend ProFicient Fundamentals training (classroom and online options are available) prior to the Design/Engineering phase. The basics covered in this class will facilitate discovery conversations by giving your internal administrator a clear understanding of PoD—and how it can be used to achieve your objectives.

Administrator Training. Your internal system administrators are trained in how to use and administer PoD. With this training, they can provide internal troubleshooting and support to your users, leveraging their experience and knowledge of your quality objectives.

Rollout. PoD is deployed to your plant(s), with InfinityQS or Service Provider engineers providing go-live support. We conduct train-the-trainer sessions that enable your internal experts to train users.

Follow-up Support. InfinityQS or Service Provider follow-up support ensures continued adoption through reviews, which are conducted with project owners at each site. We also support managers and plant engineers with data analysis and reporting needs, and review metrics related to project goals—including ROI initiatives.

Subsequent Sprints. Subsequent sprints can be used to identify and design solutions for your quality objectives as they evolve. As shown in the deployment diagram on the previous page, examples of system enhancements include deploying semi-automated or automated data collection, expansion of data collection for enhanced analysis, alarms and traceability, and workflow design that matches your current processes. Additional details about potential enhancements can be found in the Beyond Critical KPIs: Optional Enhancements section.



Deployment Timeframes

When you're deploying critical KPIs in a focused, centralized environment, you can expect deployment timelines similar to the following. Deployment timeframes are dependent on the desired scope of the solution, as well as the level of standardization across the enterprise.

- Pre-deployment phase, including discovery and the initial focused solution design, typically requires 3 - 4 weeks
- Initial deployment of the focused solution requires 1 2 weeks
- Rollout deployment of the focused solution across remaining plants requires 1 2 weeks

Roles & Responsibilities

Your active participation in the PoD deployment project is critical to its success. Based on our experience, we have identified common roles and responsibilities that provide essential knowledge and support during deployment, depicted in the following table.

Client Project Team				
InfinityQS Program Manager	 Reports to leadership Works closely with Quality project liaison Reports directly to project sponsor 			
IT Project Manager	 Serves the needs of the quality project liaison and project sponsor Works closely with the InfinityQS Engineering or Service Provider Project Manager Reports status of project budget and timeline Coordinates internal resources 			
Initiative Deployment Managers (IDMs)	 Coordinate specifics for the sites such as products, processes, and specification limits Conduct conference calls with sites, and act as subject matter experts Interact regularly with InfinityQS or Service Provider Applications Engineers 			
Business Analysts	 Report to IT Project Manager Perform onsite pre-work Support onsite go-lives Receive Help tickets as front line support 			



Client Project Team				
Corporate InfinityQS Administrators	 Incorporate standards specified by the Quality Project Liaison Interact regularly with InfinityQS or Service Provider Application Engineers 			
Corporate Master Data Coordinator (if using a central corporate database to manage Master Data for sites)	 Coordinates within client team to create new Master Data Maintains Master Data database on corporate server 			
Field IT Personnel	 Provide expertise regarding servers, databases, Windows permissions, software installation, network support, and other IT-related tasks Interact regularly with corporate and site resources 			
	Client Leadership			
Project Sponsor	 Project champion/sponsor with accountability for project success Works closely with InfinityQS Program Manager Provides enterprise-wide system requirements 			
Quality Project Liaison	 Primarily responsible for deployment of corporate quality requirements Subject matter expert in quality policies, procedures, and statistical methods Drives site-to-site standardization Interacts regularly with InfinityQS or Service Provider Lead Applications Engineer Reports project status to senior management/stakeholders 			
Client Site Support				
Site InfinityQS Administrators: Quality Managers & Site Super Users	 Coordinate with Corporate InfinityQS Administrators regarding site- specific requirements, if applicable Post-deployment, help manage site-specific system needs 			
Site Management	Ensures site-specific deployment success by providing necessary resources and access to information			
Site Personnel	Provides feedback during the design phase to ensure site activities match system requirements			



Support & Administration

Recommended Best Practice

Establishing Super Users for Internal Support

During deployment, we leverage your internal expertise by training a team of at least two (2) super users.

Benefits

- Independently support your users internally without needing external support
- Quickly troubleshoot problems by leveraging your internal knowledge base and understanding of unique quality objectives
- Easily administer the PoD platform through its user-friendly interface
- Access to InfinityQS technical support for complex issues or connectivity problems is just a
 phone call away

Support Model

Your super users serve as your internal system administrators, while training and supporting the broader user base. The InfinityQS technical support team is available to super users for complex issues or connectivity problems. This model ensures that your experts develop extensive system experience and enables internal troubleshooting. It also gives your team the tools to fine-tune and configure the solution as your quality objectives evolve. Our model is depicted below.





Services

Recommended Best Practice

Compare Needs with Available Skills

When planning your deployment, it is important that you compare your needs with your team's skills to ensure a successful deployment. If outside expertise is needed, InfinityQS Engineering Services or one of our Service Providers can help make your deployment go more quickly and efficiently.

Benefits

- Accelerate your deployment, as well as the ROI of your PoD system
- Reduce the burden on your team, enabling them to focus on other priorities
- Ensure that best practices are followed, which improves efficiency and reduces deployment risk

Available Services

There are a range of deployment services available to PoD users, from pre-deployment planning to deployment to configuring your system—and even post-deployment optimization services. InfinityQS Engineering and our Service Providers can kickstart your PoD deployment, helping you see results faster. The following table highlights the services available.

Site Surveys	 Onsite surveys of client production facilities and IT infrastructure to help develop the scope of InfinityQS PoD implementation or system expansion services
Implementation & Consulting Services	 Onsite services to implement PoD at the client site(s) Consulting services to help clients plan an efficient migration from ProFicient on Premises to PoD Gap analysis of client implementations to develop recommendations for improving the client's implementation of PoD
Project Management	 Planning and project management services related to the implementation of PoD (single or multiple sites)
Remote Services	 Client consulting services performed remotely by an InfinityQS Applications Engineer Special pricing to assist PoD clients requiring fewer service hours

To learn more about Services, please visit our Services webpage.



Key Performance Indicators

Recommended Best Practice

Focus on Critical Requirements First

During the initial deployment sprint, we focus on supporting the KPIs you deem most critical to your success.

Benefits

- Centralize data for more efficient KPI data reporting
- See tangible ROI more quickly
- Leverage critical KPI data to find additional areas for improvement
- Improve process efficiency and product quality

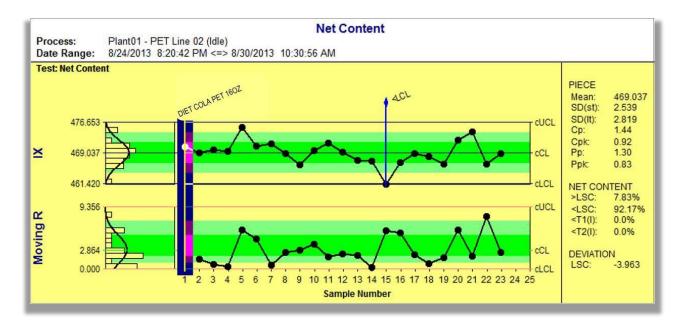
Supporting Your KPIs

Key data points that are typically most important for manufacturers—such as weight, length, volume, temperature, etc.—are available in one central hub for access by all levels of your organization. Online visualization of data is available in a variety of SPC charts, including: Control Charts, Histograms, Box & Whisker Charts, and Pareto Charts. System alarms notify your personnel of specification or control limit violations, so they can proactively respond. Variable (weight, length, volume, etc.) or attribute (Codes, OK/Not OK, Visual, etc.) data can come from keyboard, touch screen, barcodes, or electronic gauges.

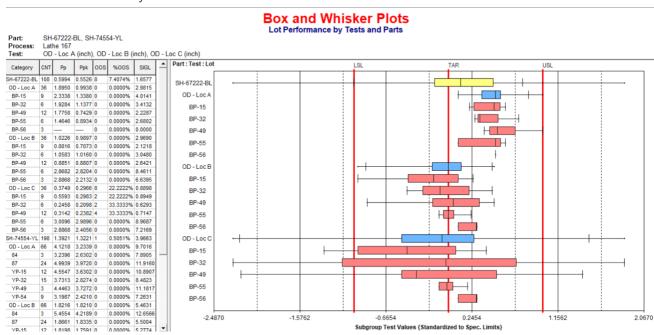
We provide several charting examples on the following pages.



Control Chart - Net Content. In this example, the chart's yellow background color indicates a violation in a recent subgroup: Subgroup 15 is marked "<LCL"—meaning it is below the lower control limit. For Net Content, LSC (Label Stated Content) and T1/T2 results are shown on the right-hand side.

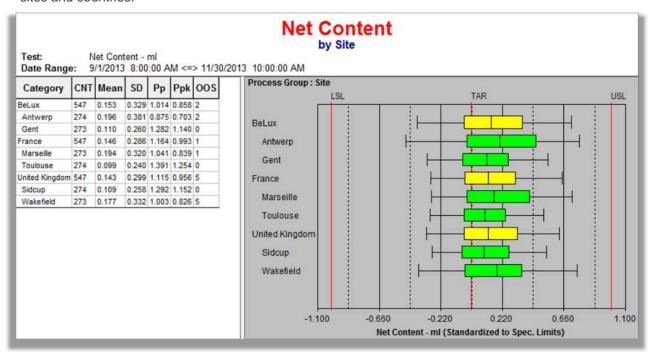


Box & Whisker Chart Example – Outside Diameters (ODs). This chart provides a comparative analysis showing relative distributions of ODs per part, per test, and per lot. Data are shown as deviations from the target and with normalized tolerances. Wider boxes mean higher variation, while the position of the boxes show how centered they are within the tolerance.

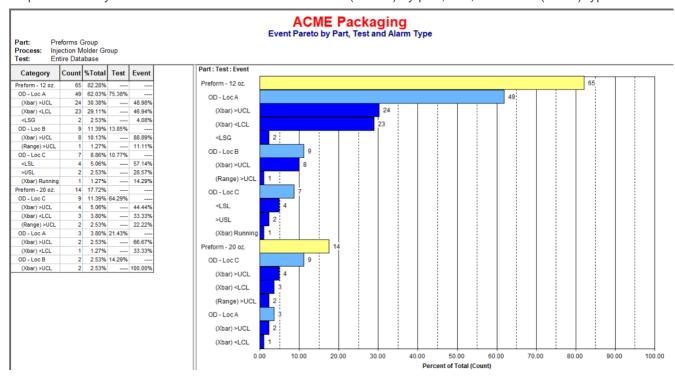




Multi-Site Box & Whisker – Net Content. This chart allows for comparative analysis of variation across sites and countries.

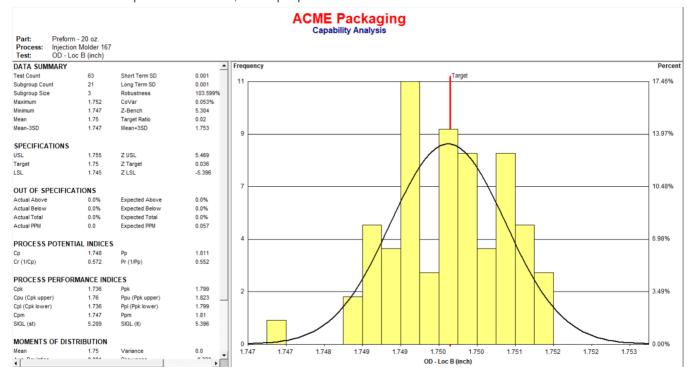


Pareto Chart Example – Test Violations including Preform ODs. This Pareto Chart provides a comparative analysis that shows occurrences of violations (events) by part, test, and event (alarm) type.

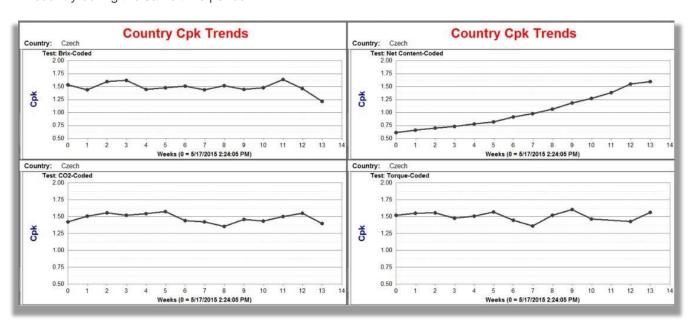




Capability Analysis – OD - Loc B. The Histogram below demonstrates process capability. Data to the left of the histogram indicates test and subgroup counts, specifications, percentages of the test count that are outside the specification limits, and Cp/Cpk.

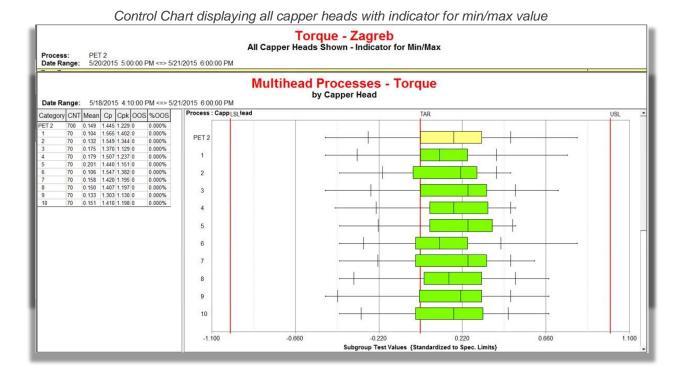


Cpk Trend Analysis. Process capability can be viewed in several ways. The chart below shows process capability trends for common soft drink beverage tests (Brix, Net Content, CO2, and Torque) for one country during the same time period.





Multiple Processes and Data Streams. Multiple manufacturing processes and multiple data streams from each process (example: multiple filler heads) can be captured and displayed on a single Control Chart or Box & Whisker Chart. This provides the ability to show min/max values—or even each filler head—as an individual stream on the chart. This is particularly useful for tests such as Net Content (by filler head) and Removal Torque (by capper head). Examples are provided below.

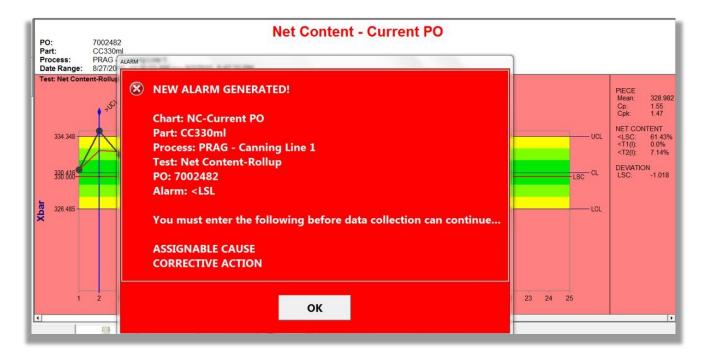


Box & Whisker Chart showing Cap Torque across multiple capper heads

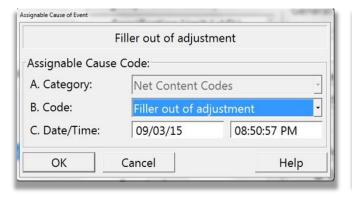


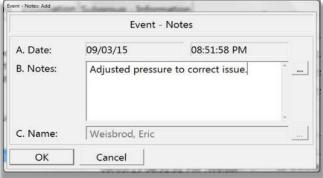
Alarming, Specification Limits & Recording Causes. When quality test data violates specification limits, warning limits, or control limits, ProFicient on Demand can trigger alarms/alerts. The following example demonstrates an alarm for Net Content violating a lower specification limit (<LSL).

Custom alarm rules can also be created. When an alarm occurs, emails can be sent to key personnel in real-time. In response to an alarm, an operator can identify an Assignable Cause Code (ACC) and/or a Corrective Action Code (CAC). These inputs can then be used in reporting to help diagnose the most common source of alarm violations.



Assignable Cause Code. The operator can be required to enter a reason code for a violation and add notes to explain how it was corrected or to provide additional detail.







User Experience

Recommended Best Practice

Deployment Goals Driven by Value-based Reporting

Deployment success depends, in part, on identifying upfront your data reporting goals. Identifying the data needed—and how it will be analyzed—informs how the system is configured. That means you will have immediate access to meaningful, actionable data instead of sifting through loads of data points while trying to figure out what it all means.

Benefits

- Make meaningful data available for users across your organization
- Streamline data collection and analysis by targeting your specific data collection needs
- Create standard graphs, charts, reports, etc. that provide real-time, visual updates

Reporting for Users Across the Entire Organization

Your KPI data can be reported per country, per plant, per line, per material (SKU), per package, per defined period/day/week/month/year, and per production order. These reports can be used to examine historical data as well as real-time KPIs.

Rolling up the data into a single corporate database enables users to analyze data across the enterprise by the defined categories.

We have provided examples on the following pages of a single KPI across plant, line, and product for a specific country; all KPIs by plant and line for a country; KPIs by region; and KPIs by container type.



Grape 1.5 L

Process: Czech Group Test: Net Content-Coded Date Range: 5/1/2015 12:00:00 AM <=> 8/18/2015 12:00:00 AM					
Part	Process	Subgroups	Ср	Cpk	Actual Total
Cola 330ml	PRAG – Canning Line 1	360	0.88	0.76	2.53%
Cherry Cola 200ml	PRAG – Canning Line 1	360	0.89	0.77	1.89%
Cherry Cola 330ml	PRAG – Canning Line 1	30	1.77	1.46	0.0%
Super Cola 330ml	PRAG – Canning Line 1	30	3.24	2.9	0.0%
Orange 330ml	PRAG – Canning Line 1	360	0.87	0.75	2.71%
Lemon Lime 330ml	PRAG – Canning Line 1	30	2.57	2.51	0.0%
Super Cola 0.5L	PRAG – Canning Line 1	270	0.89	0.78	1.48%
Super Cola 2.0L	PRAG – Canning Line 1	270	0.91	0.8	1.41%
Cola 1000ml	PRAG – Canning Line 1	331	0.93	0.83	1.27%
Cherry Cola 1000ml	PRAG – Canning Line 1	360	0.94	0.83	1.31%
Cherry Cola 500ml	PRAG – Canning Line 1	360	0.92	0.81	1.53%
Orange 2.0L	PRAG – Canning Line 1	270	0.92	0.81	1.56%
Raspberry	PRAG – Canning Line 1	30	1.03	0.98	0.0%
Ginger Ale 2000ml	PRAG – Canning Line 1	30	2.52	2.27	0.0%
Apple 1500ml	PRAG – Canning Line 1	30	3.88	3.66	0.0%

Single KPI (Net Content) by line and product for a given country

270

0.97

0.86

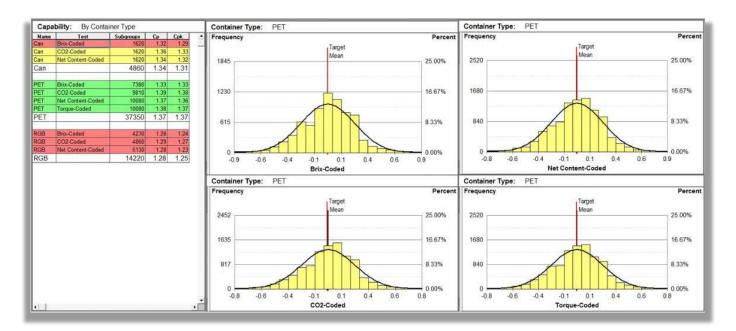
0.78%

PRAG - Canning Line 1

Process: Czech Group Date Range: 4/30/2015 9:00:00 PM <=> 8/18/2015 12:00:00 AM					
Process	Test	Subgroups	Ср	Cpk	Actual Total
PRAG – Canning Line 1	Brix-Coded	1170	1.55	1.55	0.0%
PRAG – Canning Line 1	CO2-Coded	1170	1.53	1.53	0.0%
PRAG – Canning Line 1	Net Content-Coded	1170	0.88	0.76	2.18%
PRAG – Canning Line 1	Brix-Coded	2191	1.47	1.47	0.0%
PRAG – Canning Line 1	CO2-Coded	2221	1.48	1.47	0.0%
PRAG – Canning Line 1	Net Content-Coded	2221	0.93	0.82	1.33%
PRAG – Canning Line 1	Torque-Coded	2220	1.51	1.51	0.0%

All KPIs by plant and line for a given country





KPIs by container type across the enterprise



Deployment Model

Recommended Best Practice

ProFicient on Demand Deployment Model

PoD is a cloud-hosted quality monitoring solution. Working with Microsoft, we offer you an easy-to-manage quality software solution that lets you focus on improving your processes and product quality—while we focus on the solution's availability and security.

Benefits

- Easily configure and scale PoD as your organization expands
- Access ProFicient on Demand at any time—with 99.5% uptime per our service level agreement
- Reduce your calls to technical support: PoD's IT infrastructure is managed by InfinityQS and Microsoft
- Easy access via mobile devices
- Gain tangible results with a lower total cost of ownership
- Centralize data for easy access by your users anywhere in the world
- Securely collect and analyze data via Microsoft Azure ISO/SOC certified hosting facilities
- Free up IT resources to focus on business needs
 - > Eliminate time spent on database maintenance, installation, and upgrades
 - Quick upgrades with no disruption to business operations



Achieving Return on Investment

With access to real-time manufacturing intelligence, you will improve efficiency and quickly achieve tangible ROI via cost savings. Some of the most common ways our manufacturing clients have achieved return on investment include:

- Improving yield. Our clients realize ROI by leveraging Statistical Process Control (SPC) to produce products as close to target as possible. The result is an optimal use of raw materials—with minimal waste.
- Reducing out-of-specification events. Out-of-spec events can cause production delays
 and result in wasted product that have to be discarded. Timely checks can help you
 proactively identify and resolve issues upstream. As a result, productivity is increased—and
 more product makes it to your clients.
- Fine-tuning quality—across the enterprise. By analyzing data across lines, plants, and
 the entire enterprise, you can target opportunities for improvement that result in overall
 operational improvements. You can analyze line data to identify the most efficient lines for
 each product or run more complex products on newer lines, or you can use data to better
 prioritize improvement opportunities that support your quality objectives.

The single most important tool in identifying quality improvement projects for your company is data. With ProFicient on Demand, you will have immediate access to the real-time data you need to make informed decisions about where to focus your efforts and resources. The result of those informed decisions will be increased productivity, efficiency, and cost-savings.



Beyond Critical KPIs

Every day, you strive to ensure the quality of your products by monitoring and analyzing critical KPIs. As you evolve beyond just tracking critical KPIs, PoD can support the following expanded quality initiatives:

- Automated sampling from inline monitoring systems (i.e., Anton Paar and Maselli)
- Integration with MES/ERP systems, such as SAP
- Sampling compliance and adherence reporting using Dynamic Scheduler
- Operational checks including:
 - Clean-in-place (CIP)
 - Steam-in-place (SIP)
 - Water treatment
 - Equipment checks
- Advanced event reporting and compliance, such as assignable causes and corrective actions requirements
- Process state tracking via line monitoring integration
- Instrument calibration checks

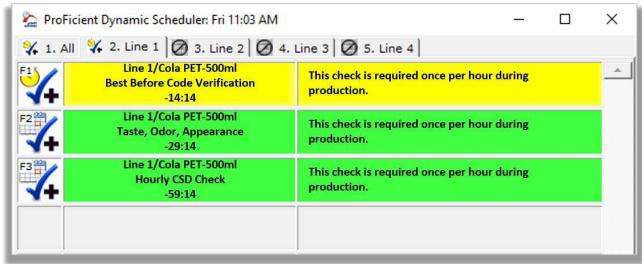
Two examples of optional enhancements are on the following pages.



Scheduled quality checks using Dynamic Scheduler. Using ProFicient's Dynamic Scheduler, you can set up automated quality check reminders for a bottling operation to make sure data collection is performed on time. Reminders for Best Before Code Verification; Taste, Odor, and Appearance; and Hourly CSD Checks are displayed below.

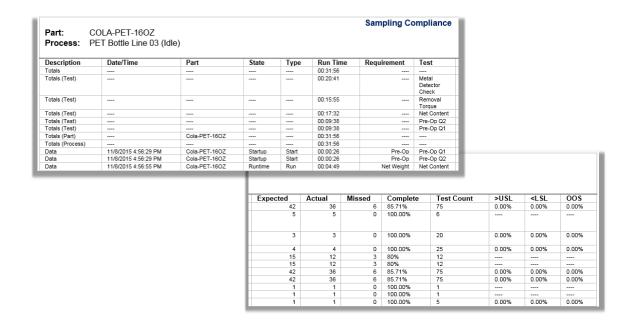
Each check is accompanied by a countdown clock; as such, an operator always knows how much time remains until the next check is due. There is no need to watch a clock—and there is no risk that data collection will be forgotten. Dynamic Scheduler takes the guesswork out of monitoring quality checks by automatically notifying key personnel if a data collection is not performed.







Sampling compliance and adherence. With Dynamic Scheduler, you can quickly produce sampling compliance and adherence reports, demonstrating compliance with regulations. The Sampling Compliance & Adherence report below depicts expected, actual and missed tests on a PET type beverage bottle.





Additional Resources

Website

Please visit our website at www.infinityqs.com, which offers more information about ProFicient on Demand—as well as resources such as:

- Case Studies
- Demos & Webinars
- White Papers
- Tech Notes
- Research & Analysis
- Videos
- Articles
- Blogs