Inspectorio

TOP 4 KPIS

for Data-Driven Quality Management

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In the past, quality management was wholly reliant upon post manufacturing reports and issue descriptions. In other words, the traditional approach has been to catch issues once they've already left the production line and then work on finding a solution for future rounds of production. However, the most cutting-edge companies are now shifting towards a much more resilient and adaptive practice—one that involves gathering data throughout the whole production process and applying it as early as possible to eliminate problems sooner.

Increasingly predictive and preventative measures will nip product quality issues in the bud and keep them from making it through the production process, paving the way for happy, loyal customers and great sales performance. In this paper, we'll delve into the details of data-driven quality management so that you can get an idea of how it can help you revamp your approach to production for the best possible results. We'll also address why this data-driven management strategy is so important for any modern production line and go over which key performance indicators (KPIs) to pay the most attention to.

> **And, you'll gain some valuable insight on how to ensure that you're closing the loop on quality management and optimizing your strategies for future rounds of production.**

What is data-driven quality management?

The approach of data-driven quality management involves utilizing technology to gather product information from each stage of the manufacturing process and analyzing it to keep potential future issues from happening. This data and resulting analysis can then be leveraged with each new round of production in order to produce better results each time.

The next great step in data-driven quality management is the utilization of A.I. and machine learning to optimize data collection and analysis in real-time—giving brands and retailers better opportunities than before to catch problems early on. When machine learning and A.I. collect and analyze data real-time for you, you'll have more and better opportunities to proactively jump on potential issues, mitigating problems and protecting your company from painful profit losses.

Utilizing modern technology that collects and processes data real-time will give you and your manufacturing partners priceless information that they didn't have such early access to before. This improved and optimized data collection can help your manufacturing partners streamline their production approach from the very beginning of each production cycle and prevent potential quality issues from ever incurring costs.

Machine learning and A.I. transform data-driven quality management, empowering you to:

1. **Predict and prevent defects** entirely, instead of only recognizing them in hindsight

2. **Actively find areas to improve** your products, process, and global quality & compliance

3. **Compile performance metrics** that are tailored to each business' unique needs

4. **Improve overall quality** of production to optimize use of company resources

Why is data-driven quality important?

In order to ensure that your company is making the best possible use of its resources and time, it's crucial for you to keep a steady eye on progression as a whole. To gauge progression, you'll need every piece of the puzzle to develop a complete understanding of where your resources are going and where your company is headed. So, when you use technology to gather and analyze inside information from all key points of the production process, you'll be far more able to take a look at the big picture and pinpoint potential risks. Additionally, you'll be more able to respond to these risks right away and identify opportunities to smooth out the process, reduce costs, and optimize your supplier base.

Data-driven quality management provides you with the unique opportunity to fill in information gaps by giving you 360-degree visibility within your production network.

The less able you are to prevent errors and potential defects from reaching the production line where they'll need correction, the more cost of quality you wind up having to pay for. Data-driven quality management places the power in the hands of decision-makers who can stay on top of important tasks, such as keeping an eye on supplier performance and ensuring that their stores remain stocked on time, preventing costly issues from gouging into profits and harming brand reputation.

How to implement a data-driven quality program?

So, how do you go about gathering useful data and successfully leveraging it in your favor so that you can streamline operations and improve your business? One of the most important things to remember is that the quality and applicability of your data are crucial. There is no room for murkiness or uncertainty in a data-driven quality management strategy: You need to be able to process high-quality data and then display the results of your analysis in a clear, organized way that your team members can easily grasp and apply. The two key components that retailers and brands need in order to do this are:

- Standardized data to use for comparisons and learning
- Good, high-quality data for increased accuracy

Standardizing data is critical so that you know what you're comparing information to. You have to have something consistent that you (and everyone else) can use to measure changes and interpret new data.

Additionally, it's important to not underestimate the power that the last bullet point has to make or break your company's strategies. If the data you're using is no good, then the skewed results that you get won't help your process or improve profitability, and the resources you put into analysis will be wasted.

Now that you're familiarized with the core concepts behind data-driven quality management and why it's so useful, you're probably wondering what kind of data you should focus on collecting! Luckily, there are four KPIs that you can utilize to keep an eagle eye on your production network's inner workings and get the best-possible quality information on where you can strategize even more effectively.

Top 4 KPIs for data-driven quality management

Key performance indicators are metrics that businesses can use to help measure performance quality and progress and improve their strategies while they strive to meet their goals. Since quality control and assurance are tricky to measure, the resulting lack of measurement leaves companies with no way to pinpoint the issues that need solving or to navigate their efforts towards improvement. For this reason, KPIs are invaluable.

Tracking these 4 KPIs will assist you with a data-driven approach to quality management:

1. RIGHT FIRST TIME (RFT)

This highly useful KPI helps you gauge the quality level of your production process by taking a critical look at the final product. RFT measures the number of garments out of your total production quantity that emerge from your production line with no defects and no modifications to be made before the sale. In other words, RFT answer the question: Out of all the total garments you produce, how many of them are perfect?

Once that number is obtained, you can use it to figure out your RFT percentage. The fewer defective items that leave your production line, the higher your percentage. The ultimate goal is to reach a point where you're producing zero defective products for an RFT of 100%.

How can you work towards the goal of 100% RFT?

Always remember that error prevention is the most cost-effective way to improve your strategy. So, making sure that everyone's on the same page during your Pre-Production Meetings (PPMs) is an ideal way to set your company up for success. Make sure you present the data you have in a clear and organized way: Each person involved in the production process should walk away from the PPM knowing exactly what their responsibilities and goals are.

Everyone should also walk away from PPMs feeling crystal clear on details such as customer specifications, key details about the raw materials used in the production process, and the quantity of goods to be produced.

You can improve the effectiveness of your PPMs by:

a.

Making PPMs more efficient and inclusive with digital tools.

Utilize tools to make sure that each team member involved in the PPM is given every possible opportunity to understand production goals. Even when someone isn't present for the PPM in person, digital tools can help you bridge the gap so that they're just as well-informed as everyone else. It's also advisable to record your PPMs for future reference.

b.

Getting data analytics on the success rate of your PPMs.

Another advantage of recording your PPMs is that it improves traceability, helping you gather important data that can be used to streamline future meetings and communications. Bring that invaluable closed-loop process into play here as well as throughout the production stream: Gather information on the success rate of your PPMs and apply those learnings to improve strategies for the next PPM to ensure better communication and results.

Another method that you can use to achieve your goal of 100% RFT is to hone in on the root causes of defects and eliminate them so that they don't reach the production line and start accumulating costs. The first step is to identify these root causes so that you know precisely what to eliminate from the production process. Diligently applying Corrective Actions and Preventive Actions (CAPA) is a great way to incorporate previously-learned data into each next round of production so that your RFT percentage will continue to improve.

Here are a couple of particularly helpful CAPA methods:

a.

Collaborative CAPA.

Collaboration can be extremely helpful by enabling a team to build off of one another's ideas for both Corrective and Preventive Actions that could completely revamp your production process. More eyes on the historical data you've collected in terms of past defects can offer you fresh perspectives and spot important trends that might otherwise have gone unnoticed.

b.

Emphasizing real-time communication with CAPA.

Real-time communication, alongside bringing out the best in your team's ability to problem-solve, also streamlines the data collection process. Instead of struggling to compile notes from scattered calls and buried email threads, you'll be able to record CAPA application as it unfolds. This real-time data provides you with priceless insight and more easily measurable data that you can apply in the future.

2. DEFECT RATE

The defect rate is another handy KPI that can help you gauge what kinds of defects are most likely to pop up in the future and where. This KPI tells you how many defects you can expect to find in any given unit, based on historical data gathered via inspections over time. The defect rate is calculated by dividing the number of defects observed over the number of units inspected.

Since quality is such a huge determining factor in whether or not your company will be able to get a leg up on the competition, you want to ensure that you're collecting and analyzing the quality data needed to actually cut down your defect rate. The lower the defect rate, the better this KPI is—and the better your production strategy is working.

How can you lower your defect rate?

1. Gather accurate data about defects in the production line.

The importance of accuracy here must not be underestimated: It's imperative to make sure that the data you're gathering is as thorough as possible. An overlooked defect here or there might not seem like much, but those mistakes can add up and dramatically skew your data, preventing you from accurately identifying and solving problems.

Make sure that your inspectors are as well-trained as they can possibly be so that they're less likely to miss important details and leave defects unreported. We also recommend increasing the use of technology to increase transparency and verify each inspector's integrity—which helps to verify the integrity of the data they give you as a result.

Additionally, it's important to standardize data. A "defect" can be broadly defined as a noncompliant condition, but various companies may break this down differently. If you don't standardize your data, then you'll wind up comparing things that don't go together and you'll struggle to interpret the data into applicable results. In short: If your data isn't standardized, then your data analysis will be inaccurate.

Standardized data is critical when centralizing data gathered from different brands, product lines, countries, and so on. Everyone must synch together and ensure that they're discussing and comparing the same things. Acceptance Quality Limits (AQLs), defect classification lists, and inspection processes are prime examples of data that retailers and brands should standardize across global supply chains.

2. Use the defect rate to help you nail down where defects are originating.

You can analyze the defect rate by factory, by country, by inspection type, or by product line in order to gain a more comprehensive overview. This well-rounded data set will then enable you to better pinpoint where problems are originating, set performance standards throughout the supply chain, and identify which areas need improvement.

This is another key area where standardized data comes into play: Brands and retailers need to be able to compare their data against a standard "measuring stick" so that they know where to better allocate their resources. You don't just need to know the defect rate, after all: You must be able to act on it.

3. Once you've zeroed in on where the issues are, you can finally dig up the root of each problem.

In the apparel retail industry, there are several common culprits that result in defects, such as:

- Improper handling of the garment during production
- Improper or inefficient usage of machinery
- Failure to follow patterns properly
- Sub-par maintenance of production machinery

Keeping an eye out for these common issues can help you spot and predict small mistakes that have the potential to snowball into major problems further down the production line. By specifically watching out for common production problems and making sure that every member of your team knows how to do the same, you can prevent issues in your production line that will set less-proactive competitors back.

4. Maintain high-quality historical data about your defect rate.

Compiling information over time is necessary in order to see if your adaptive strategies are actually resulting in the improvements you want. Determining whether your defect rate is improving or not will clearly indicate whether you've eliminated root causes of quality issues. Comparing month over month, year over year, or year to date will also help you zero in on specific indicators that can show how to improve your strategies even further.

3. INSPECTION PASS RATE

Out of all the inspections that are carried out, the “inspection pass rate” addresses the number of those inspections that pass. This metric is a good one to keep an eye on since it gives you a good idea of how well each specific link in the supply chain is performing. The higher the inspection pass rate, the better this KPI is.

How can you improve inspection pass rate?

1. Remember that inspection rates directly correlate with product quality.

So, as you can imagine, the most important goal here is to improve product quality, which will then boost the inspection pass rates as well. This goal requires a proactive approach with a sharp focus on gathering reliable inside information on how you can catch problems as early as possible to improve quality.

2. Pinpoint the source and severity of the defects that are occurring.

Where can the defects be traced back to? And, are they minor, major, or critical? Finding the answers to these questions will help you determine where to focus company resources to solve the root issue. Of course, one of the simplest ways to spot problems as soon as they emerge is to maintain strong visibility over production, inspections, and current defects at all times.

3. Identify patterns through different types of comparisons.

In order to gain a thorough understanding of the data you've collected, compare your inspection pass rates across different product lines, factories, and countries. You want to have a broad and well-rounded context for your data so that you have increased opportunities to spot patterns that will highlight where you can improve your production. For instance, if inspection rates get significantly worse at a certain factory, then you'll want to invest your resources there to improve production quality and lift those rates back up.

4. Implement CAPA with your suppliers to fix root causes of production issues.

Collaborate with members of your supply chain to apply Corrective Actions to any defects that have already made it to the production line and use Preventive Actions to keep it from happening again in the future. Remember that CAPA can also be used during your PPMs to discuss what you've learned from defects: You can use that information to close the loop and apply improved methods to future rounds of production. Ensuring that everyone is on the same page and working to solve the same issues will do wonders to optimize the production process.

4. CUSTOMER RATINGS

You're undoubtedly already familiar with the fact that customer satisfaction is a massive factor in the success of a company, and the internet has made it easier than ever for you to use customer feedback to your advantage. The voice of the customer (VOC) is highly valuable as a tool to gather data on your level of success—especially when it comes to boosting your brand's reputation and demonstrating concern for the customer's needs. Retailers and brands should encourage customers to leave feedback and ratings on their purchases, and then use their overall ratings as a KPI. And, of course: The better your rating, the better the KPI.

How can you collect customer ratings and use the voice of the customer in your approach to data-driven quality management?

1. Use your online presence to collect ratings on your products.

Leverage your online stores as ways to encourage customers to give feedback and leave ratings on things they've purchased. The best way to make sure that this information is quantifiable and easy to interpret is to use a consistent rating system for them to provide their opinions on your product quality. A classic example of this is the "1-5 Star" rating system, which is more easily quantifiable than many written reviews.

2. Let customer reviews help you identify high and low points.

Once you have your rating system in place and consistently compile customer satisfaction data, you'll be able to see the patterns that come to light over time. Poor ratings can help you spot issues with your products that you can then address during your next round of production. And, high ratings can highlight areas where you're doing well and can carry on without the need for any major changes in how you're allocating those resources.

3. Trace issues back through the supply chain to identify the root.

If you receive poor customer feedback on a particular product, make sure you take a look at other KPIs and trace the problematic item back through the production line. Analyze the big picture, integrating all the data you've gathered throughout the production process, to identify high-risk areas in the production chain where things might have gone wrong.
Luckily for brands and retailers with access to the cutting-edge technology of today, it's much easier than it used to be to trace products back up the production stream. For example, if you've already been seeing less-than-stellar inspection pass rates from a certain factory, you'll know to analyze how that might have affected the poorly-rated product. Without a smooth, integrated technological system, following the problem product's journey and tracing it back to solve root issues wouldn't be possible.

4. Never underestimate the value of collaboration and communication.

Opening communication between retailers and their suppliers is an incredible step in the right direction, since it enables everyone to stay on the same page and quickly share info about pressing issues. In addition to maintaining maximum transparency throughout the production process and keeping the lines of communication open, the advantages of collaboration can't be emphasized enough.

Closing the loop on quality management

Data-driven quality management is, by and large, one of the most effective ways out there to calculate your business' production quality and increase overall success. In order to get the data that you need to form a complete view of the bigger picture, it's crucial to keep an eye on each stage of production, from PPMs to the end consumer. That way, you can close the loop on quality management and apply more and more knowledge to each stage of production, resulting in vast improvements to your strategy and your outcomes.

Each of the KPIs we've broken down here touch upon different critical stages of the production process, and each one can give you an invaluable piece of the puzzle so that you can put together a more accurate view of your current state of production. When you can clearly see what's going on, you'll be more able to collaborate with other team members and identify areas that need improvement. Gathering data from every step of the process enables you to optimize your decision making and allocate your company's resources where they're needed the most.

The closed-loop process enables powerful decision-makers to unite people with data and processes across the entire production stream. This method unifies the company so that everyone is aware of their shared goals and can work together to optimize their efforts towards meeting those goals. Within the closed loop, everyone gets to learn from what went on in the past and apply those learnings to the future: No one gets left in the dark, wondering how they could have done better or why their efforts to adapt don't seem to be solving the current production quality issues.

Once you apply the data you've gathered using these four highly effective KPIs, you can take the analysis of that data back to the beginning of the production stream using the closed-loop process. Then you can use those learnings to update everyone involved in the production process so that you can move quality issues further upstream—that way, they impact profits and reputation less. When you've reached the point where those learnings have come full circle, your team can collaborate on preventative actions to stop quality issues and defects.

How Inspectorio can help you collect better data

Every business out there wants to optimize their production process so that they can rest assured that each company dollar is being put to good use. We're here to help with data-driven quality management methods that can improve your production strategies and make the most of your company's valuable resources.

Inspectorio provides a centralized platform to collect, standardize, and analyze data relating to every area of quality performance. In other words, we provide all the access you need to KPIs that can revolutionize your production strategy on a single platform.

Measuring KPIs for data-driven quality isn't merely about gathering data—it's about gathering data that you can trust. The quality inspections industry is riddled with obsolete, disconnected, and inefficient systems that allow persistent problems to slip through the cracks. You need your data to be trustworthy, accurate, and thorough. With the right technological tools to adapt your business goals and strategies, you can take your data-driven quality management to the next level. Inspectorio can fill this gap in your toolbox and help you optimize your game plan like never before.

Learn more