



An Improved Method of Quality Control to Elevate Papa John's Franchise Service Delivery

This white paper explores how Papa John's pizza stores recently implemented an automated quality control solution to increase revenues and customer loyalty and how you can implement the system in your own franchise. It discusses the drawbacks of traditional methods of quality control, specifically mystery shoppers, and identifies how automating this process saves time and money for franchise owners while improving the customer experience.

Executive Summary

For decades, most restaurant franchise owners used traditional methods of quality control like mystery shoppers to measure customer service techniques, the accuracy of orders, and the condition of the pizzas themselves. This method does not always provide an exact measurement of quality, because mystery shoppers only evaluate a limited quantity of product. Mystery shoppers also fill out their reports after the fact, which may cause them to forget some aspects of the process that don't make it into the final report.

Papa John's franchise owners recently tested a new, automated quality control system that uses a type of AI known as machine learning to more accurately measure pizza consistency. Using this system led to a 30% increase in pizza quality, which in time will save the franchise owners money on food waste and training costs and lead to more satisfied customers.

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Introduction

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Papa John's Franchise Service Delivery

Opening a franchise is a popular option for a new restaurant owner. Franchises come with a recognizable brand name, so you don't need a heavy marketing push to build awareness of the cuisine. Once your store has opened, it has a built-in customer base, many of whom will probably visit as soon as the store is open. But as a franchise owner, you are required to adhere to a set of customer service and production standards. Customers expect the same product from each location regardless of where it is. Quality control ensures that your franchise is meeting these standards.

In the past, franchise owners used flawed techniques including mystery shopper programs to evaluate the customer service practices and pizza quality within each location. This technique is usually only conducted once a month, and only 4-5 products are evaluated within each visit. A typical Papa John's franchise in the Houston area can produce 8,000 pizzas in a day on average. As such, mystery shoppers are only evaluating less than .1% of all pizzas coming out of the chain in a month. Additionally, the process itself is fallible. Each report is filled out by a person after the visit has been completed, so it's possible that they might not record every aspect of their visit correctly.

Inaccurate quality control costs time and money for franchise owners in terms of lost revenue due to food waste, unhappy customers, and other factors. By improving quality control methods, franchise owners can improve training and achieve higher consistency in their products, saving money and boosting customer satisfaction.



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Problem 1: Training Costs

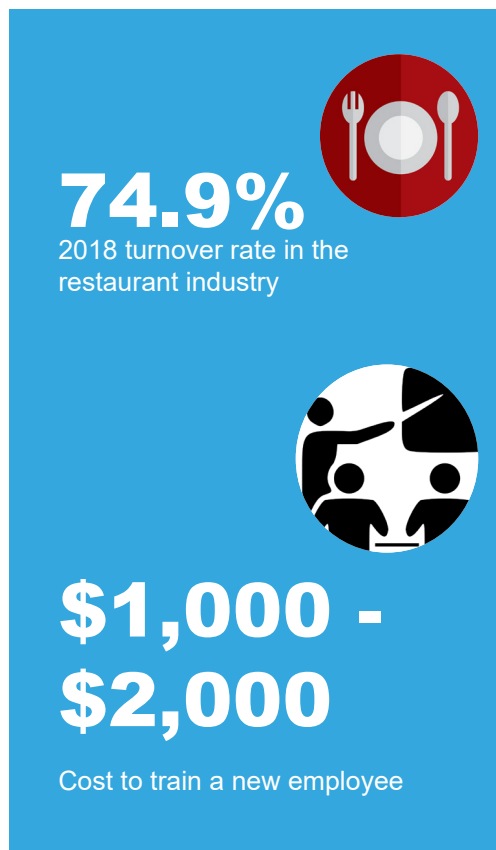
By its nature, the retail and restaurant industries experience high annual rates of employee turnover. Most front-line jobs are filled by people who are younger and/or less skilled. Some younger people move on from the company when they finish school or find a job that lets them advance their skills. Others leave because they get bored and want to try different lines of work. Restaurant.org reported that the [2018 turnover rate in the industry](#) was 74.9%.⁵ With frequent employee turnover, a franchise owner is likely to have to train new employees every few months, taking on the associated costs.

Another drawback to high employee turnover is that short-term employees may be less motivated to perform their jobs well.

Traditional quality control methods only assess less than one percent of final products, so there is no way for you as a franchise owner to determine whether poor production can be attributed to select employees or if there might be a flaw in the training process. Many retail organizations utilize mystery shoppers as a form of quality control.

As with restaurant franchisees, store owners are often told in advance when to expect the mystery shopper. In order to stay in good standing with the franchisor, you may be tempted to give your employees a heads up that they will be mystery shopped within a certain timeframe. This is another drawback to mystery shopping as a form of quality control, because it doesn't lead to accurate results. When employees know that they are being monitored, they tend to be on their best behavior. While this is good for customer service, it's impossible to determine whether high quality pizzas are standard within your location or if they are exceptional because your production employees know they're being monitored.

Automated quality control helps you refine your training practices so your quality is consistent regardless of who is making the pizza. Even if your store experiences high turnover, you can be sure that new employees are being trained correctly to maintain the consistency of your pizzas.



Problem 2: Customer Satisfaction

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Traditional quality control methods, including mystery shoppers, don't do enough to curb the instances of dissatisfied customers. As a franchise owner, you can't expect your customers to be happy all of the time. Unsatisfied customers is a standard part of every business. But accurate quality control methods make your customer service and production tactics more consistent, making it more likely that your customers will be happy.

There are a variety of points in the customer service and production process that can lead to dissatisfied customers. Breakdowns in the production process lead to incorrect orders. In this instance, customers have to wait at the store for you to make the right pizza. If the pizza is being delivered, they not only have to wait on you to make their order again, they also have to wait for you to dispatch another driver.

Customers may also be disappointed with the bake on their pizza or with the ratio of ingredients. If one of your employees uses fewer toppings than another, then your customer could complain that their meat lovers pizza didn't come with enough meat or that their toppings weren't distributed correctly if they ordered a pizza with toppings on half. Papa John's brand promise is: "better ingredients, better pizza." Delivering an improperly prepared pizza results in a failure of the franchise to deliver on the brand promise.

An Inc. article called "[The Cost of Unhappy Customers](#)" by Graham Winfrey details the tangible costs of unhappy clients. In the article, Winfrey estimates that unhappy customers are three times more likely to share their bad experience with friends. (Winfrey 2021)³. Social media makes it easier for your clients to share bad reviews with a wider audience. If they include a hashtag on their post, it then becomes more visible beyond the user's network. These bad reviews cost your business revenue from clients who don't come in the door because of negative reviews they see on social media.

Keeping clients happy is a key component of client relationship management. A [2014 USDA report](#)⁴ related to pizza consumption in the United States estimated that "About 1 in 8 Americans consumed pizza on any given day." (Rhodes, et. al. 2014) Pizza is one of the most popular foods in the United States. Once you have opened your franchise, you can expect a number of regular customers within your neighborhood. Retaining existing customers is more cost effective than finding new ones. On average, the cost to attract a new customer is ten times higher than that of managing relationships with existing customers.

Quality control alleviates potential mistakes in customer service and production which makes it more likely that your customers will be satisfied.

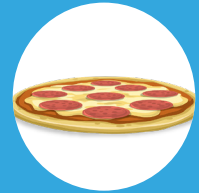
3X

Dissatisfied Customers are 3X more likely to share their negative experiences with a business with their friends.



1 in 8

Number of Americans eating pizza on any given day. Retain your existing customers.



10x

Higher cost to attract new customers than to retain existing customers.



Problem 3: Food Waste

[According to FoodPrint](#), “US restaurants generate an estimated 22 to 33 billion pounds of food waste each year.”¹ The [USDA estimated](#) that restaurants threw \$161 billion worth of food away in 2010² for a variety of reasons including large portions, spoilage, and incorrect orders. As a franchise owner, you are throwing money in the trash each time a customer receives an incorrect order.

There are a variety of factors that lead to food waste. One is poor customer service. When your employees miskey phone orders or in-person orders, not only does the pizza have to be thrown away, the client has to wait longer for the corrected order. In order to curb them from leaving negative review, you may end up comping the order. Now you have not only lost money on the incorrect pizza that ends up in the garbage, you have had to pay for two pizzas and potentially angered a customer. Inaccurate quality control leads to food waste in other ways.

When your production employees aren't following the right techniques to make pizzas, you could end up with a surplus of ingredients which are disposed of when they become spoiled. For example, if you have one employee in the kitchen who is heavy-handed with the sauce, you end up with pizzas that have too much sauce, and you run out of this ingredient more quickly, having to spend more money to replace it. Additionally, the quality of your pizzas won't be consistent whenever this employee is on shift, so your customers' expectations from your restaurant vary every time they order.

Along with wasting money, food waste carries a big environmental impact. The energy that is expended producing and shipping ingredients that are used to make the final pizzas is essentially wasted when those products are thrown away. Additionally, food waste is bad for any brand. Some people may associate you as a restaurant owner throwing food away instead of sharing it with people in need with other unethical business practices. While the best solution is to improve your quality so you're not wasting food in the first place, you could also consider donating the night's leftovers or composting them to reduce their impact on the environment. Inaccurate quality control methods make it easier for employees to make mistakes on orders, causing you to throw the incorrect order away. This level of food wastes costs you money for pizzas that aren't being eaten, ingredients that are being used on items that end up in the dumpster, and comps for incorrect orders as a customer service method. Focusing and improving production processes leads to a 50% reduction in food waste.



**22-33
Billion**

Pounds of food wasted by
restaurants per year



**\$161
Billion**

Worth of food thrown away by
restaurants in 2010



**CO₂
Emissions
and Wasted
Water**

Environmental costs associated
with wasted food.

Solution: An Automated Quality Control System

To tackle these problems associated with traditional quality control methods, an automated quality control system was developed. This system uses a type of AI known as machine learning to track the production process for all 8,000 pizzas sold by each location. It works by mounting cameras over the production area to track a series of metrics that assess the quality of every pizza produced within the franchise location.

Machine learning is an AI system that allows the computer to learn by analyzing different bits of data. For the Papa John's pizza franchises, cameras took various measurements of each pizza, including measuring the outer diameter of each pizza and taking specific circular measurements of the inner pizza using Papa John's franchise guidelines and KPIs. Each machine was also able to assess ingredients that were present on each pizza. Franchise owners could see each machine and program it to recognize certain ingredients. They could also input the data for various orders, enabling the machines to learn the desired final product for different types of orders.

Using machine learning to automate the quality control process let franchise owners more accurately assess the final quality of all products that were being sent to customers. Rather than relying on a person to analyze 4-5 of 8,000 pizzas, each could be assessed as soon as it was taken out of the oven.

Solution 1: Training Costs

One positive outcome reported by the franchise owners who used computer vision quality control is the ability to manage staff members by how they work. Since all pizzas can be accurately measured, you can see who is doing well at production. You may notice that one person has a knack for creating perfect dough or that another pays close attention to detail with the toppings. When you see these things, you can reward your employees, boosting morale and potentially reducing turnover. You can also have these talented employees train others who might not be working as well. When you see someone who makes excellent dough on a consistent basis, you can invite them to teach a little seminar to your other employees so they can nail the technique.

Computer vision quality control lets you track employee performance and reward the top employees.

You can identify employees who may be a better fit in another role.

This not only makes work more fun for your employees, it also results in consistent quality for each customer. This tool can also help you identify employees who might be more comfortable in a different role. For example, if you notice that there is an employee who makes a lot of little mistakes while making the pizzas, you may watch them and notice that they are talking a lot to customers in the store. In this case, instead of reprimanding the employee for not paying attention to the pizza, you might move them to the cash register where a large part of their job consists of interacting with employees.

With automated quality control, you can tailor training to each employee. Using cameras to evaluate the quality of each pizza might make employees feel like they're being watched, so communicate to them that this is a valuable teaching tool. They can use it to see how they can improve their techniques. Also use the tools to show employees what they are doing well. You can use it to help them track their improvement.

Solution 2: Customer Satisfaction

Customers at restaurants can be unhappy for a variety of reasons, but the most common are customer service and incorrect orders. Using a computer vision system helps guarantee that the quality of each pizza will be consistent. It lets your customers expect that the medium, original crust, cheese pizza they order at noon on a Saturday will taste the same as the one they order on a Tuesday night.

Traditional methods of quality control don't examine every pizza that comes out of the oven, and they don't account for human error. If you have an employee crafting the cheese pizza who doesn't fill their measuring cup all the way when adding cheese, a customer might end up being upset that their pizza isn't cheesy enough.

The automated quality control system offers video footage that can be seen as soon as the pizza is pulled from the oven. This system monitors each pizza with 95% accuracy. You can check the data report to see if the pizza is the right size and has the right balance of ingredients. You can even measure crust thickness to see if it measures up to brand standards. With these checks and balances in place, you can be sure that each order going out of your store is correct, reducing the instance of unhappy customers.

Using a computer - vision quality control system

- **Measures 100% of your pizzas**
- **Score pizzas according to standards**
- **Offers accurate data about the quality of pizzas**

Papa John's locations in the Houston area who implemented this system reported a 30% improvement in the quality of their pizzas. With the computer vision system in place to monitor production operations and the final product, you can focus your human quality control systems on customer service. Letting the automated system evaluate the product, you can work more closely with people who answer the phone and greet customers to find potential breakdowns in service and remedy them.

You can also spend more time working with front line workers to diffuse customer complaints and rectify them before it escalates to a complimentary pizza. By improving your client relationship management process and empowering front line workers, you can more easily prevent clients from leaving negative reviews and focus on enhancing connections with your existing customers.

Solution 3: Food Waste

Automating the quality control process with machine learning allows employees to find breakdowns in the production process. When your franchise uses this tool to monitor 100% of your pizzas, you can see where ingredients are potentially being wasted through errors in the cooking process. Since each pizza is evaluated based on its size and its ingredients, you can make note of areas where employees are making frequent mistakes.

For example, if you notice that the cheese to sauce ratio is off during one shift, you can retrain these employees so they stop using too much sauce or too much cheese. Doing so will cut down on the instances of food waste due to improper preparation. Since the automated quality control system can be integrated with your POS, you can see if there are shifts in which people are miskeying orders. There could be a specific pizza

**Highly rated pizzas of
better quality will not
have to be thrown away.**

**Your customers will
be happier with their
experience.**



type or ingredient that results in more errors than others leading to a higher percentage of wasted pizzas. The computer vision system can also alert you to equipment that might be malfunctioning. If your system notes a high percentage of burnt crusts when people order thin crust pizzas, you can check the settings on your oven. It's possible that your kitchen employee set the temperature incorrectly, but frequent burns can also be a sign that you need to service your oven. Fixing this problem promptly not only saves you from losing money due to food waste, it lets you repair your equipment sooner, instead of waiting until there is a costly problem.

A computer vision quality control system generates a variety of reports that let you see which pizzas are selling at higher quantities. In the US, the most commonly ordered pizza topping is pepperoni. As a franchise owner, you probably have plenty of pepperoni on hand, and this ingredient likely never goes bad. However, other toppings may be more hit or miss. Looking through the quality control report, you can get a more accurate assessment of how many people ordered less popular toppings like peppers, black olives, onion, and pineapple. Tracking these trends will help you better order these toppings from your supplier, so you're not constantly disposing of unpopular toppings.

Case Study

As discussed, the computer vision quality control tool was developed and tested by 54 Papa John's franchise locations. Justin Burgos, Director of Training and Recruiting participated in a brief video to discuss the system and its results for these locations. Burgos works for a company that provides operations for a number of national franchises including Papa John's.



In the video, Burgos mentions that the software developer who created this automated system worked closely with his company to anticipate their needs and tweak the tools based on what they intended to measure within each franchise. Franchise owners were particularly impressed with the developer's ability to tweak the tool based on their feedback. Popular features included the ability to measure and grade each pizza and generate a report detailing what could be improved to offer the best experience to each customer.

The process used is simple and consists of three steps:

1. Recognition – determines whether or not a pizza came through the camera
2. Detection – in this step, the ingredients of the pizza are analyzed including toppings, size, crust, sauce, etc.
3. Dashboard Reporting – In this step, the system automatically generated reports.

These reports can be used for a variety of factors including evaluating employee performances. Operations managers and human resources professionals could determine if there are shifts where people perform better than those on others. The reports could highlight that employees were more accurate during slow periods and that more people might be needed during peak times to improve pizza consistency.

Using these reports, franchise owners could track the data for shifts in which people consistently performed well or if there were anomalies in which people weren't performing well, such as an employee calling in sick and not finding anyone to cover their shift during a busy period.

After using the program for a month, franchise owners reported an average 30% improvement on the quality of their pizzas as reported earlier. They also indicated a 25% increase in sales. Burgos reported that all of the franchise owners who implemented the system in their stores were happy with it. They found it easy to use and appreciated reading the data reports generated by the system.

This system can be adapted and used to monitor quality for other franchises. It is an affordable way to monitor your production quality and determine if there are changes that can be made to operating procedures. It is an affordable solution that leads to increased order accuracy and more satisfied customers.

Conclusion

While many restaurant franchise owners still rely on traditional methods of quality control, including mystery shoppers, this dated method rarely provides an accurate assessment of a company's quality. Since mystery shopping visits are only conducted once a month, they are sampling a mere fraction of a company's products, which isn't a sample big enough to develop a true picture of quality. These visits are also conducted by people, and the reports are completed following the visit. It is possible that not every part of the service and product experience is captured in the report.

Inaccurate quality control costs franchise owners money in terms of food waste, unhappy customers, and training costs. Restaurant owners have to discard pizzas made with the wrong ingredients or made with imperfections like burnt crusts or unevenly distributed toppings. They often also offer free pizzas to customers whose orders are incorrect. Improperly made pizzas cause franchise owners to waste money on ingredients that spoil as well.

Dissatisfied customers can impact a franchise owner's finances by telling their friends about a negative experience and leaving bad reviews through social media or other means. Since it is more expensive to attract new customers than it is to keep old ones, franchise owners lose the money that they have to spend getting new customers to counteract bad reviews.

Since the restaurant industry typically experiences high annual rates of turnover, franchise owners spend time and money hiring and training new employees multiple times per year. Old quality control methods did little to help a franchise owner improve their training methods.

Automated quality control using computer vision with machine learning technology vastly improves the process for operations and human resources. The tool uses a camera to record an image of each pizza as it comes out of the oven and rate it according to specified quality metrics. This tool is more accurate than traditional methods of quality control, and it allows franchise owners to evaluate 100% of their pizzas with 95% accuracy.

This tool can not only be used to reduce food waste as a result of incorrect orders, it can also be used to assess unpopular ingredients that can be bought in smaller quantities. The tool can help franchise owners determine who is performing well within the company and reward them for their hard work. It can also be used to see if certain employees might be better suited for a different job such as customer service or a delivery driver. Tailoring training to employees' weaknesses and rewarding their strengths helps improve morale and reduce turnover.

If you are interested in using automated quality control in your own franchise, contact Kwali and let us tell you about our system and how it can help you.

About Kwali

Kwali is leading tech company producing solutions for automating franchises. The company uses various algorithms to develop tools that enable fast and accurate machine learning to enhance operations at every stage of the customer service cycle. Its tools let franchise owners create customer service and personnel solutions that improve the client experience.

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