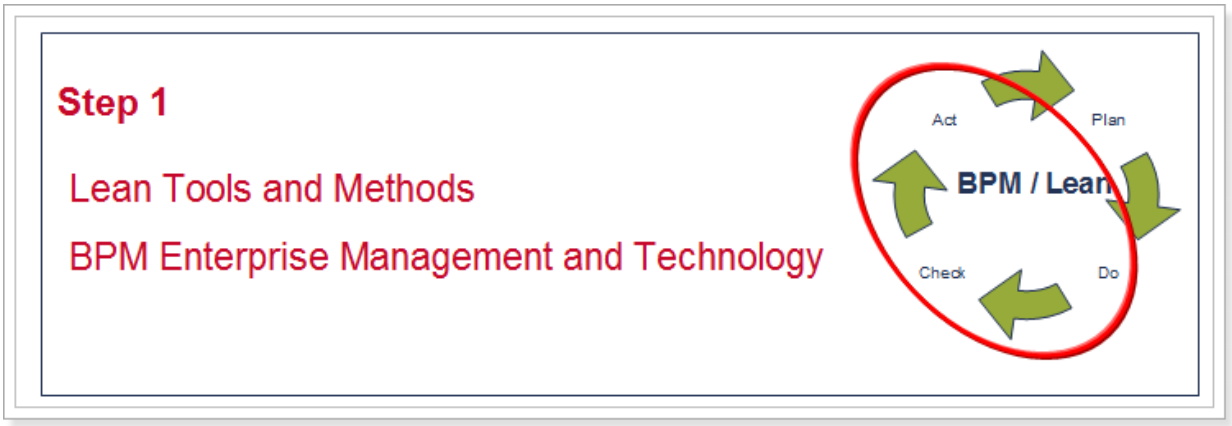
Article 3: Do, Check and Act

This first part of this article covers Step 1 and the Do, Check and Act Phases.



When we left Pete's Pizza Palace, Pete Jr. and his staff knew what the problems were and had agreed on the plan to solve them. Now Pete Jr. and the staff need to implement that plan and make sure that they are solving problems but not creating downstream impacts. Sometimes, as we solve one problem in a process, we create further bottlenecks or problems downstream. The Check phase is the best assurance, a sanity check if you will, to verify that solving the problem doesn't create more problems. Then Pete Jr. and the team may act if tweaking is needed.

New Techniques:

During the Plan phase, Laura gathered as much information as she could about how the process worked, reviewing the BPMS, and by going to the *gemba*. Now, she will update the BPMS with the process changes and use that to go back to the *gemba* and compare results.

Results in Check:

On the first day, the number of wrong orders went from 25% to 5%. The cooks caught five wrong orders during the quality control check and replaced them before they went to the customers. Everyone except the delivery guys cheered because when a pizza was re-made it took longer and the pizza had to be delivered late. The delivery guys said that with the old process the customers did not know the orders were wrong until after the delivery guy left, so they still got a tip when orders were wrong, but not when they were late! The delivery guys felt like the quality control checks were solving a problem that didn't really matter to them and caused delays, and that did matter to them. Laura told Pete Jr. it was very important to pay attention to this phenomenon, sometimes when you fix one problem for a particular stakeholder, you make things worse for another stakeholder. The purpose of the Check phase is to solve these problems before officially changing the process. The *Kaizen* team didn't intend to negatively impact the delivery guys. Now that they know the impact they can tweak the solution.

Everyone agreed that when the process did work and the pizza didn't have to be re-made, things were going very well. Both of the delivery guys volunteered that their tips improved by 30% the first day. The delivery guys thought it had to do with on time deliveries since they usually got complaints, not tips, when the pizza was late.

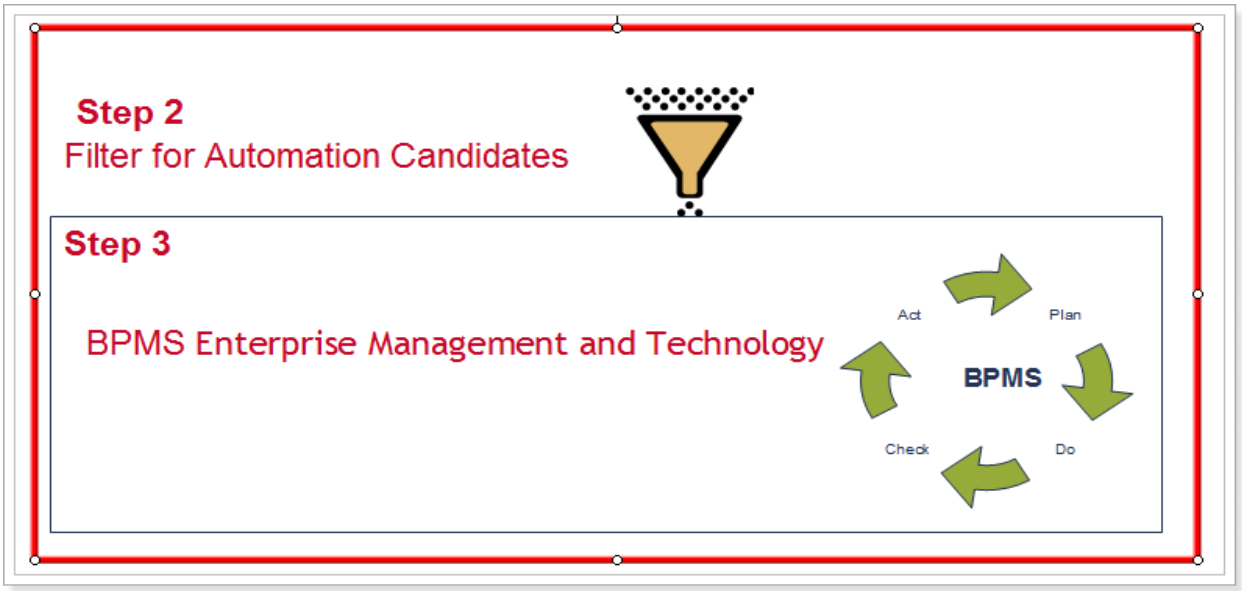
After talking about the downstream delays caused by the location of the quality control check, the cooks suggested that instead of checking ingredients once the pizzas are assembled that they lay the ingredients out before assembling the pizza. They volunteered that checking once the pizza was assembled caused problems in the kitchen. They hated throwing away the wrong orders and then making the correct order disrupted the work flow for other orders. Laura was thrilled with the insight and the solution. She told the cooks that one of the things that made Lean such a powerful tool was the use of visual signals.

After the change in the quality control step, the cooks caught three errors; otherwise, this change resulted in no waste since the ingredients were checked before the pizza was made. Moving the step also made the delivery guys happy because they were not waiting for pizza orders to be corrected. (Note: When you get the right root cause of a problem other problems downstream may also go away! It is also necessary to allow time for processes to stabilize.)

Having solved the problems with the kitchen and seeing the improved tips, the delivery guys had questions about the routes – they wanted to get those pizzas out even faster and see if they could improve their tips even more. They wondered if Laura could help them figure out how to get the pizzas out most efficiently – they were curious, should they use first order in delivered first (FIFO) or by best route if there were multiple deliveries? Pete Jr. was also interested in this question, because he was still worried about fuel consumption. Laura reminded Pete Jr. that these were good points, and it was obvious that Pete's Pizza Palace was on a Lean journey of Continuous Improvement! Laura, Pete Jr. and the delivery guys agreed to put those recommendations for improvement on the list for future consideration. Laura made sure that she logged those potential improvements in Pete's BPM System as a road map, so that the palace staff knew that their suggestions wouldn't be lost, and the Palace's continuous improvement journey would continue.

Act:

This part of the article covers Steps 2 and 3 with the BPMS PDCA phases.



The standard notation is such a success that Pete Jr. asks the team if they are ready to have more automation in their lives. He is going to have the developer, Debbie, attend a meeting with them (even if is through Skype) to talk about the system and to have them explain the changes they have tested manually. He said there are some new features that they may want to take a look at as well to determine if it will help improve things even more.

Laura, Pete Jr., the Palace employees and Debbie work together to update the existing process models in Pete Jr.'s BPM System. Using the functionality in Pete Jr.'s BPMS, the developer is able to take the process models and turn them into executable code. This ensures that the process steps, process flows, actors, constraints and key metrics identified by the Palace staff are brought to life in the automated process. The Palace employees are involved in the process design, so they have confidence that the new automated processes will be exactly what they requested. In addition, the BPMS approach is so efficient that the Debbie can make the changes in hours and have it ready for testing.

Debbie can show the optional enhancements to the staff, and by entering those enhancements into the process models, everyone can see their impact on the Palace's processes, and understand what might change as a result. Laura explains that the advantage of a BPMS tool at this point is that they can, in effect, simulate the effect of the process changes on the existing process.

After the development work is complete, Debbie will take advantage of being able to iterate the automating of the process. She will be able to show Pete Jr. and the Palace Staff that what she has coded into the workflow system matches the system they manually tested. Laura explains to Pete Jr. that using his BPMS tool to execute code changes in the workflow will now actually be cheaper because they tested the automation changes manually before implementing them in code. Additionally, since the system is already tested, Pete Jr. won't have to bring the developer back in a few months to address missing functionality or unexpected downstream problems. Pete Jr. also knows that when the changes go live he won't have to spend time training staff – they developed the notation the developer is coding and they know how to use it. The Palace staff is excited to see the developer; they know she is working

to implement changes they helped develop instead of their having to accommodate what the application does.

After Debbie makes the changes, she ensures that all of the process models are in synch with the workflow created by the automation. Pete Jr. and his team can review the changes in the format they are used to, and understand exactly what business processes will have to change as a result of the coded workflow changes. When Pete Jr. and the Palace staff review the changes, they notice that that the notification to the delivery guys is in the wrong place. They let Debbie know and the issue is fixed before the new workflow system goes live. The ability to move from a process model to executable code means that Pete Jr. saves time and money, his staff is fully prepared for and involved in the workflow change, and the net effects of changes in workflow are understood and accepted by everyone on staff. When IT and business make changes in lock step, the Palace wins. The synching of process model changes allows the business to more easily validate and understand changes in workflow resulting from development efforts.

Laura can't stop here though. She is still concerned about the organization of the kitchen area where the Palace staff bumps into each other. She does a 6S[1] exercise and, as a result, the cooks make a few more changes. Pizza boxes used to be built when a take out order was made. Now a k*anban*[2] signal is used to ensure that there will be enough boxes for the entire shift, and when the signal indicates more boxes need to be made, the cooks start to build them before their shift. The *kanban* signal for this process is simply a mark on the wall where the boxes are stored to show that there are only 50 boxes left. Pre-building pizza boxes decreases the time and space needed to fill take-out orders.

Because the 6S made the kitchen so easy to navigate, anyone can step in and help out during a busy period. The cooks like being able to ask for assistance and everyone knows they are a team trying to meet the customers' needs for the right pizza at the right time!

Pete Jr. is amazed at how well they all are working together. He used to jump in (or, as the staff thought, "Get in the way."). Now, because of the 6S, he knows he isn't in the way - anyone can use the kitchen and everyone understands the organizational system.

The Big Reveal:

A full month after the workflow system changed, Pete Jr. lets everyone know that they have earned their Chinese food! He also sets a new goal. If they can keep the error rate down for a two months, everyone will get a 3% bonus. Pete Jr. says he can't remember a complaint in the last month and he lets the team know he's so proud and that Papa Pete would have been proud, too.

Pete Jr. reiterates that the next round of improvements will be about routes. Pete Jr.'s final words in the meeting are to let his staff know how much he appreciated their input….and that they should continue to provide input if they see opportunities. He also requested that they keep measuring so that they can see how much they improved.

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[1] 6S stands for Sort, Set in Order, Shine, Standardize, Sustain, and Safety.
[2] Kanban is a signal that triggers replenishment or withdrawal in a pull system.

In Laura's last meeting on this project, she creates a Power Point slide using BPMS process flows to compare the old process and the new, improved process. She isn't expecting the team to be able to read the process details but she focuses on these points to show how far they have come in their improvement journey:

1. The red blocks show the problems that the team identified. When As Is and Future State are compared, there is only one issue still remaining. That issue is to ensure that delivery guys know their concern was road mapped for future improvement.

2. There is still a process to handle customer complaints but the measurements show that the complaint path (outlined in red) is taken fewer times.

3. The number of process steps in the "happy path" on the right side of the models where everything goes correctly is about the same but more of them are at the start of the process where quality can be built in. For example, checking the pizza order before the pizza is made.

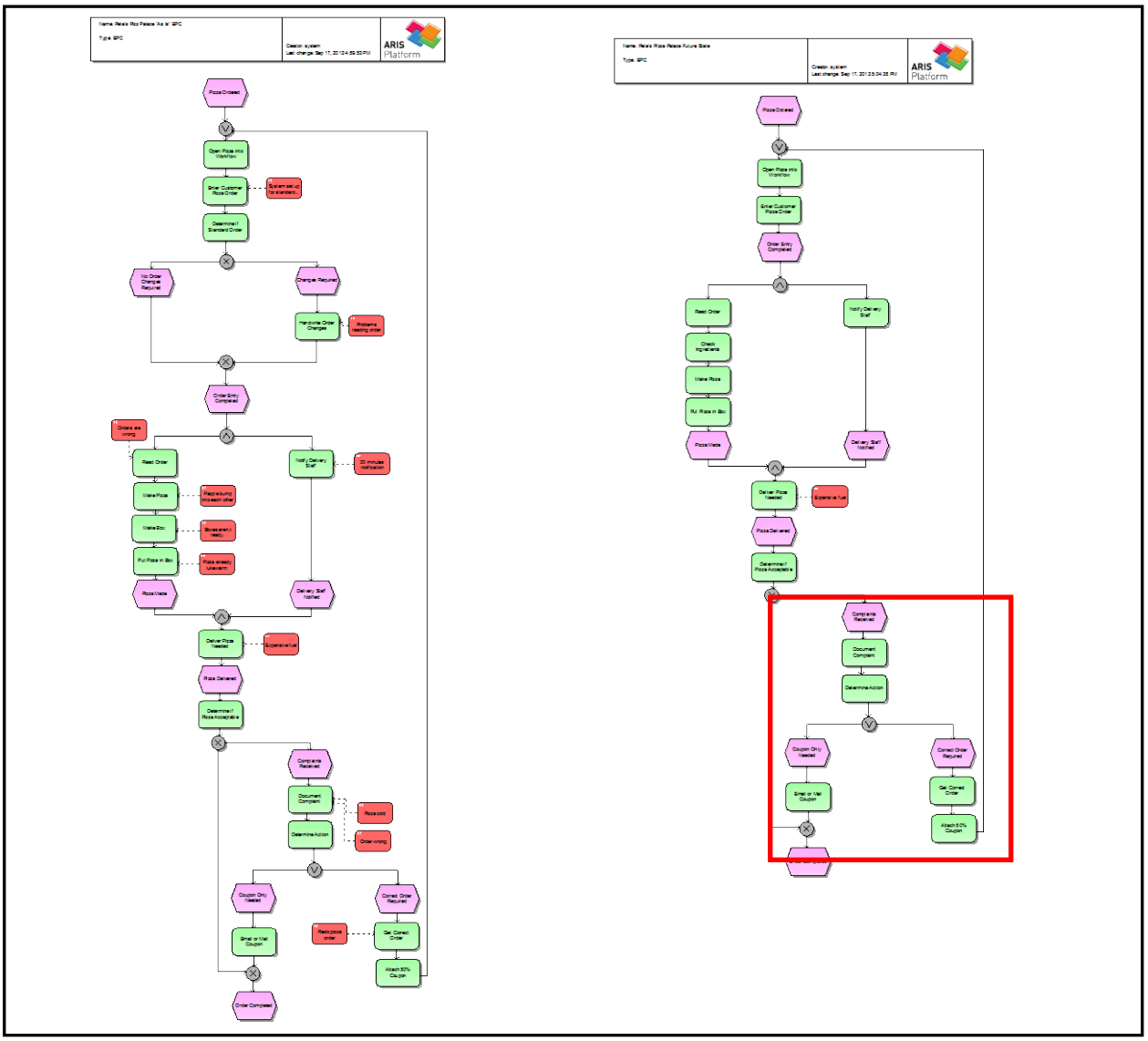

Figure 1: Comparison of Old Process (left side) to New, Improved Process (right)[3]

What Changed at Pete's Pizza Palace?

When we started looking in on Laura and Pete's Pizza Palace, Pete Jr. had a big problem; his monthly revenue was down 8%. Pete Jr. knew that his customers were unhappy with the deliveries being late and that the pizzas often had the wrong ingredients. Pete Jr. was also concerned about his fuel costs and how that might be impacting the bottom line. The delivery guys were concerned about finding a more efficient way to figure out which pizzas to deliver first so they could increase their tips.

Pete Jr. discovered he had two problems: The pizzas were being delivered cold and the automatic system didn't allow order clerks to customize a pizza order. The Palace staff had developed a work around to note changes to the order and that work around just didn't work.

At the end of his Lean project, the Palace had reduced their delivery time by 15 minutes, increased customer tips by about 30%, and reduced the error rate by 90%. Pete Jr.'s monthly sales increased 2% in the month after he implemented Lean and he reduced his inventory costs by 6% because of the quality control step.

We have also seen some of the soft savings that often occur in Lean Projects. These savings are harder to measure, but have a significant effect on corporate culture. Consider:

- Laura also helped Pete Jr. understand the importance of listening to the Palace team and his role in helping them to implement improvements.
- Everyone at the Palace believes that Lean succeeds because they believe in the Lean culture: respect for people and engaging people.
- In the last meeting with the team, Pete Jr. facilitated that meeting entirely on his own. Laura was there to provide feedback, but Pete Jr. was well on his way to running his next Lean project.
- The delivery guys, seeing the success of solving the order problems know the Palace team can work together to resolve the route issues through Lean PDCA cycle. They also know that their concerns have been road mapped, and that they will be addressed.
- The Palace employees developed a new mission statement – they want their customers to call the Palace "Pete's Perfect Pizza – delicious and done right the first time from order taking to delivery!"

[3] BPM Process Flows courtesy of SAG ARIS