APPLYING REAL-TIME DATA TO THE EIGHT DISCIPLINE PROBLEM SOLVING PROCESS IN MANUFACTURING

Catavolt

Addressing Operations Challenges

Catavolt launched a survey titled **"How Leading Manufacturers are Accelerating Operational Excellence"** in September 2014, to gain insight on how manufacturing organizations are working to continuously improve their operations, workflows and business processes.

We collected 111 responses from manufacturing professionals in various disciplines on trends and technology that are driving operational excellence. Increased competition in the market, meeting customer expectations, rapidly changing plant floor conditions, and the need to increase revenue, is pushing manufacturing organizations across all industries towards more efficient operational processes.

In this eBook, we examine how applying real-time data with new technology to the "Eight Disciplines (8D) Problem Solving Process" accelerates the problem-solving process and fosters a culture of iterative, continuous improvment in manufacturing organizations.

Manufacturing organizations are increasing operational excellence investments in 2015

85% **of manufacturing thought leaders plan to increase investments for operational excellence initiatives for their organizations in 2015.**
(Catavolt, 2015)

In a manufacuring organization, when a problem arises on the shop floor, in the field, or in route to delivery, it needs to be addressed immediately. Not only does it need to be addressed quickly, but it also needs to be dealt with thoroughly to ensure it doesn't happen again.

Ford Motor Company created the "Eight Discipline Problem Solving Process," (8D), to help teams deal with quality control and safety issues, develop customized and permanent solutions to problems, and prevent problems from recurring in the future.

By using 8D, a manufacturing operations team can mitigate future issues in a professional and controlled way. With 8D, manufacturing organizations can deal with quality control and safety issues, develop customized solutions to problems, and prevent problems from recurring in the future.

New technology is allowing manufacturing operations teams to access real-time data whenever an issue arises. With real-time data on mobile devices, manufacturing teams are solving problems and investigating potential issues before they happen.

Solve complex manufacturing problems using 8D and real-time data

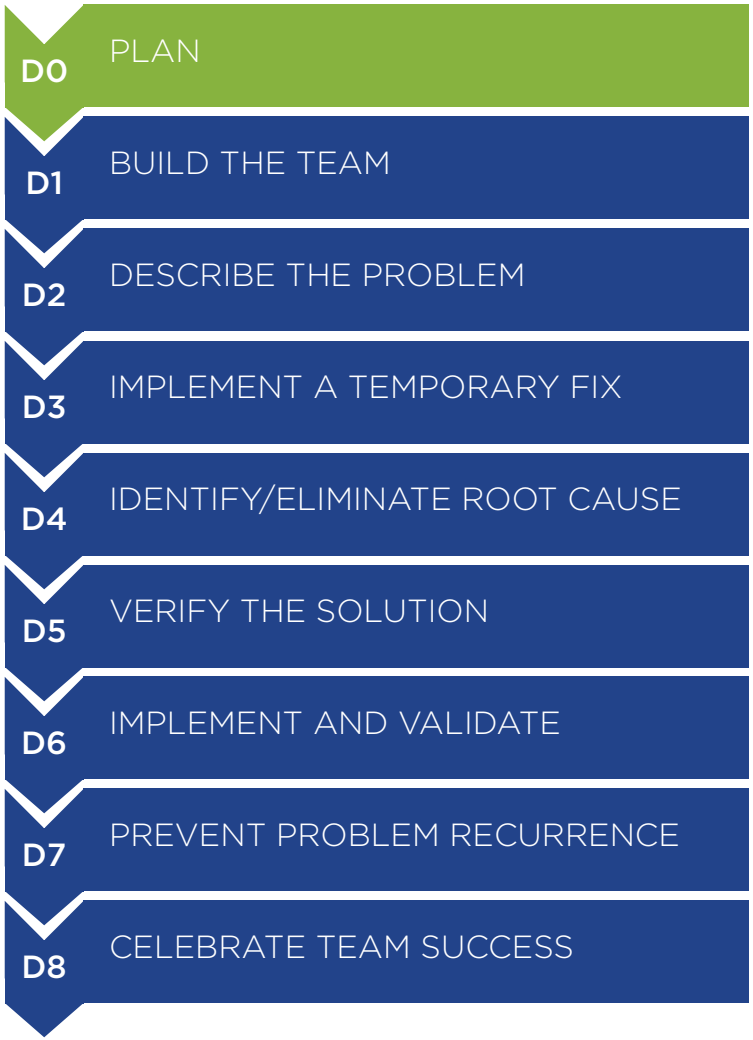
Real-time delivery and control of information empowers manufacturing teams to streamline processes and address issues on the shop floor, in the field, and in supply chain to delivery.

- By putting real-time data on mobile devices in the hands of employees, manufacturing teams can easily access the data they need to do their job efficiently.

- With real-time data, your team can address issues that are disrupting processes, creating operational bottlenecks, or reducing efficiency in the organization.

- With real-time data accessible on any device, manufacturers have instant access into errors and disruptions when they are reported, providing the ability to address concerns and collaborate with multiple departments.

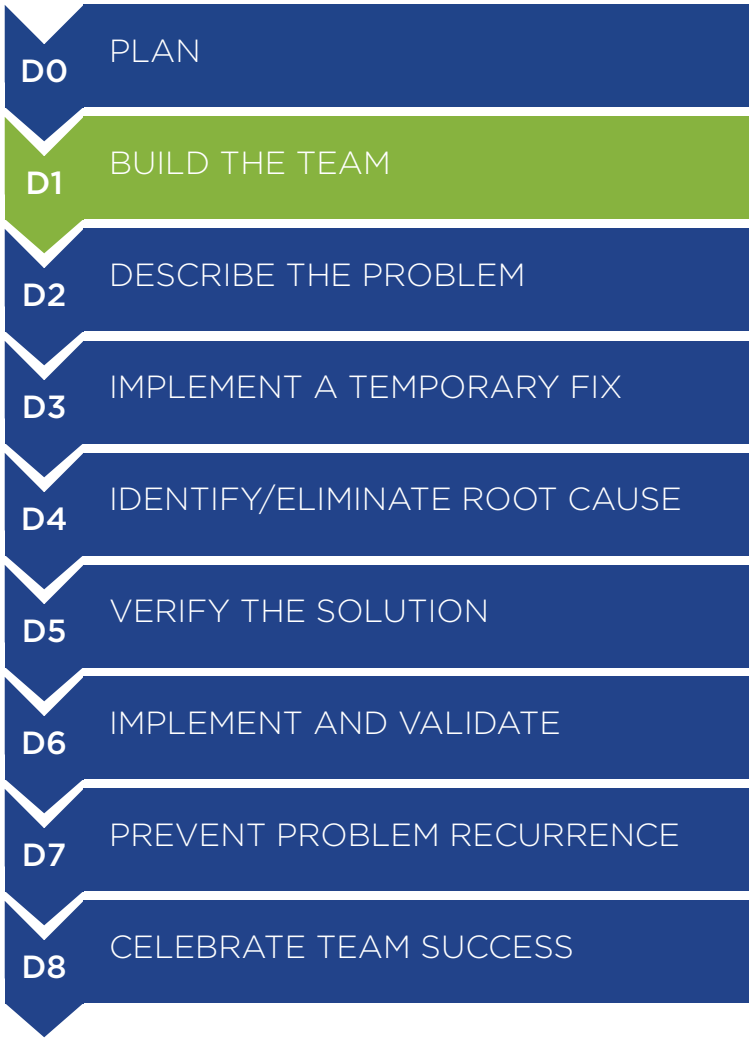
Discipline 0: Plan



Before assembling a team in your manufacturing organization to address the problem, a plan must be developed. For example, if there is an issue of keeping machines running and in compliance on the shop floor, your team should include employees from operations, the shop floor, and production to address the issue and find the best way to improve inspection processes.

With new technology that provides access to real-time data, your team can establish the metrics needed to track progress. They can also see if your data is creating success at driving these critical metrics, such as less product defects, uptime, and Overall Equipment Effectiveness.

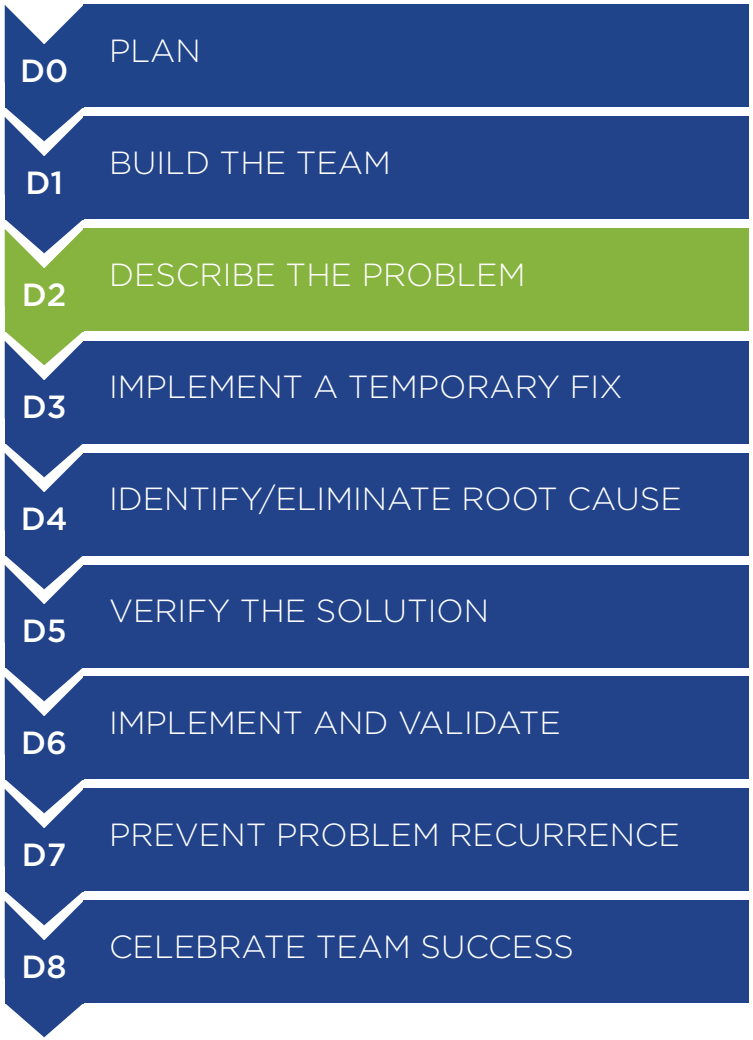
Discipline 1: Build the Team



After creating a team that has the skills needed to solve the machine inspection issue, it is important to develop goals for identifying solutions to the problem. When gathering your team, you will want to include those who read the shop floor data, as well as supervisors monitoring operations who may need more timely information to keep the machines in compliance and running. In order to build a system of teamwork with the right information, a workshop may be conducted on applying real-time data to address the issue.

When building your team, it is essential that all metrics align to what each team member needs. The main goal of building this team is to apply real-time data to find success and solve the problem. The closer your team is to the real-time data, the better they'll understand the value of it and how it can contribute to their work on a daily basis.

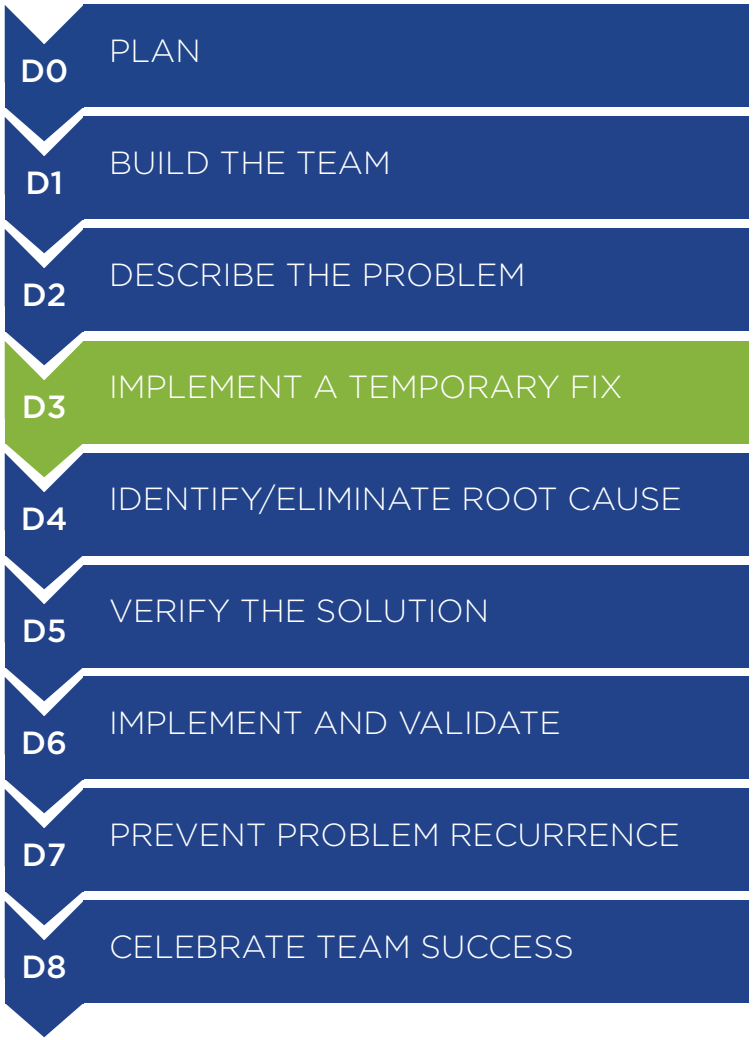
Discipline 2: Describe the Problem



Once your team is developed and ready to address the issue, describe the problem in detail. During this time, gather your team members' perspectives of the issue on the shop floor. Are they getting the job done but not getting the information they need in a timely manner? Are these teams relying on paper processes to receive this data that is outdated by the time they receive it?

With access to real-time data, your team can create a value stream map, a vital first step in developing action plans to improve manufacturing processes. This can help you identify the core problem. By developing value stream maps, your team has the ability to understand the bottlenecks, see impediments to process flows, and examine issues illustrated by poor or incomplete data. For example, this team may like to view past inspection reports to address production compliance issues on the shop floor.

Discipline 3: Implement a temporary fix

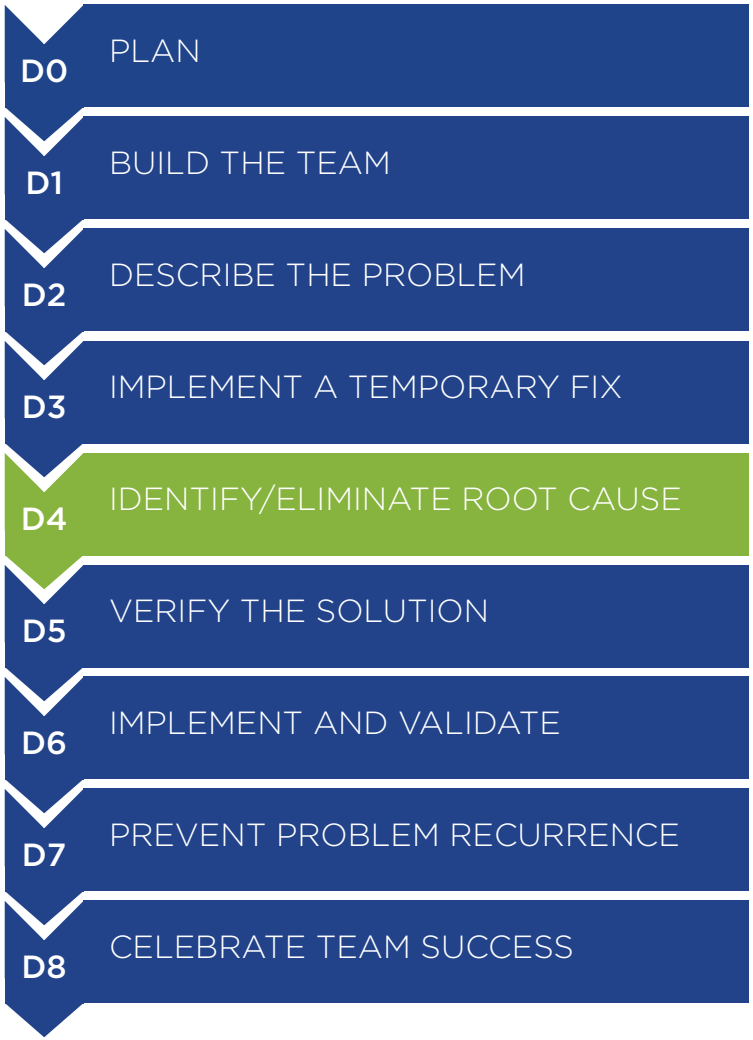


Now that your team understands the problem, identify a temporary fix. This short-term fix should be quick, easy to implement, and worth the effort.

Your team needs access to technology that is agile and iterative, to receive real-time data on time to fix problems as soon as possible. With access to real-time data, your team can communicate new ideas for temporary fixes at any time with each other in a secure location. Real-time data access gives your manufacturing team the opportunity to develop lean-oriented, iterative processes that are modernized and encourage agile refinement.

After gathering inspection reports and real-time data needed, the team can now implement an easy, temporary fix to get production moving. During the time your temporary fix is implemented, your team can monitor its effect on the shop floor and gather this information.

Discipline 4: Identify and eliminate the root cause

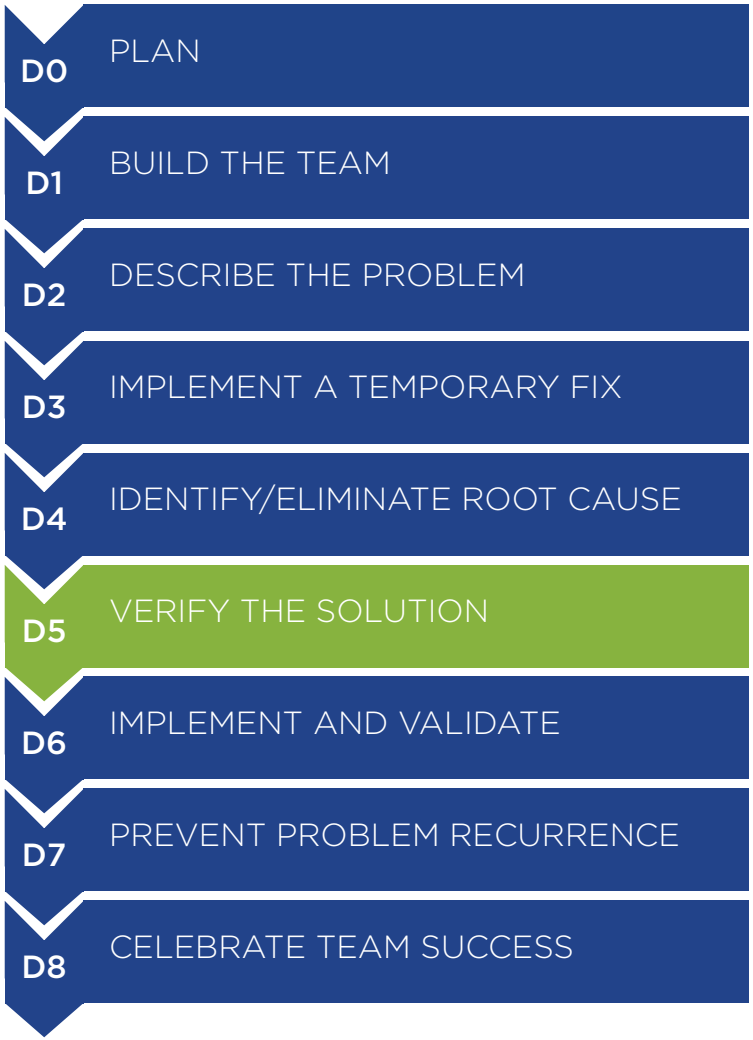


Once your team has implemented a temporary fix, it's time to discover the root cause of the problem. By creating a cause and effect analysis that identifies the likely cause of the problems, your team can easily identify the likely cause of machine inspection problems on the shop floor.

With real-time data, your team can accurately measure metrics to inform the root cause of the problem. For example, with real-time data, your team can gather how many defects the machines have quickly and efficiently. The root cause of the issue of keeping machines running and in compliance on the shop floor is often a lack of data when its needed, due to outdated, paper-based processes.

At this point, your team has identified what did and did not work with the temporary fix that was implemented, and can develop a permanent solution based on the real-time data collected.

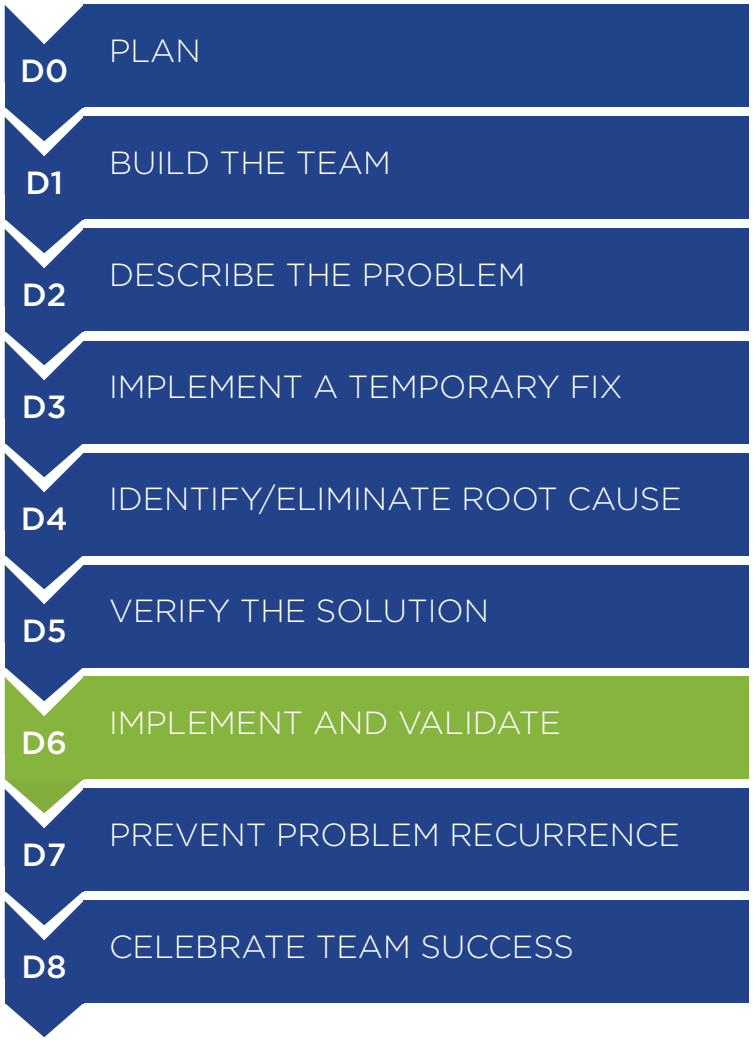
Discipline 5: Verify the solution



Once your team agrees on a permanent solution, they can now verify that the new technology has increased inspection accuracy of machines on the shop floor. With the real-time data gathered from the problem and from the solution testing process, your team can now conduct an impact analysis to resolve issues and make sure there are no unexpected future consequences. After verifying that the solution in place is efficient and no key factors have been overlooked, your team is ready to move forward in implementing a permanent solution.

Your team can now take all the real-time data and metrics collected to address and mitigate issues, creating a viable permanent solution that aligns with your goals, with success that is quantifiable. With a permanent solution that has been developed based on real-time data, metrics can be verified and measured based on the goals set to solve the complex problem.

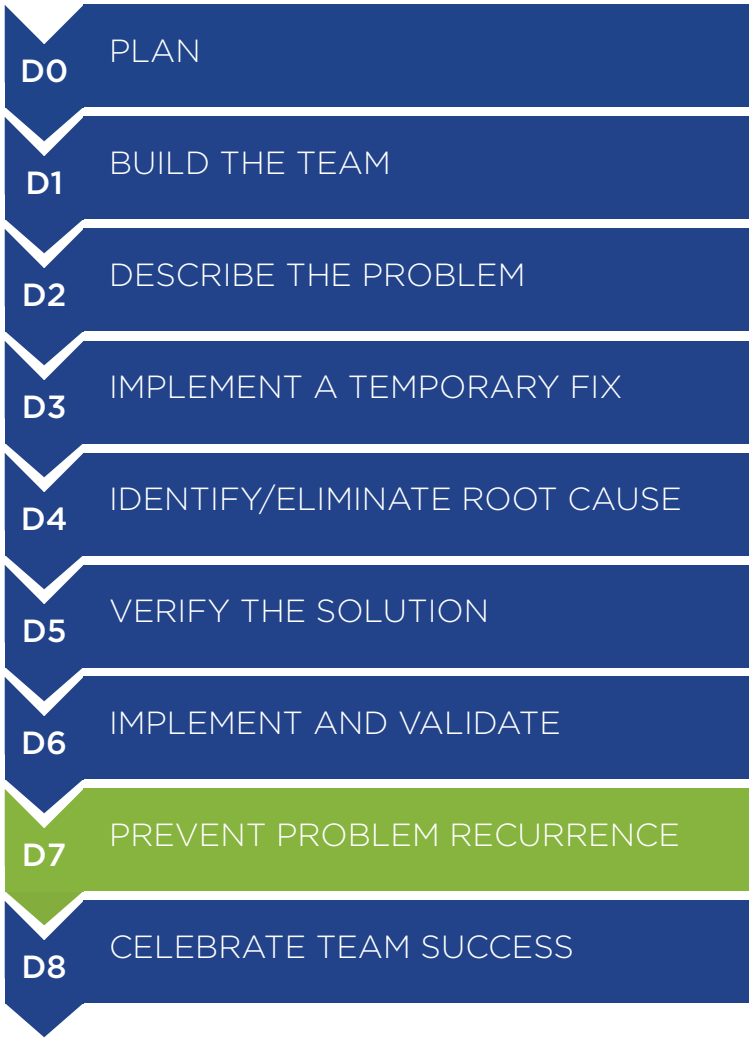
Discipline 6: Implement and validate



Once your team has reached a consensus on the solution, it is time to implement it across the organization. With real-time data access, your team can closely monitor this new solution. With access to updated production times, KPI dashboards, and shop floor maps, your team can make sure the implemented solution is working smoothly, and there are no unexpected side effects.

Your team is now ready to implement a new standard procedure of giving this new technology to all manufacturing departments, and put real-time data in the hands of the employees. **When your manufacturing operations team reviews this real-time data in the future, whether it be in a month, a quarter, or a year, they can now truly understand the return on investment for implementing this permanent solution in their organization.**

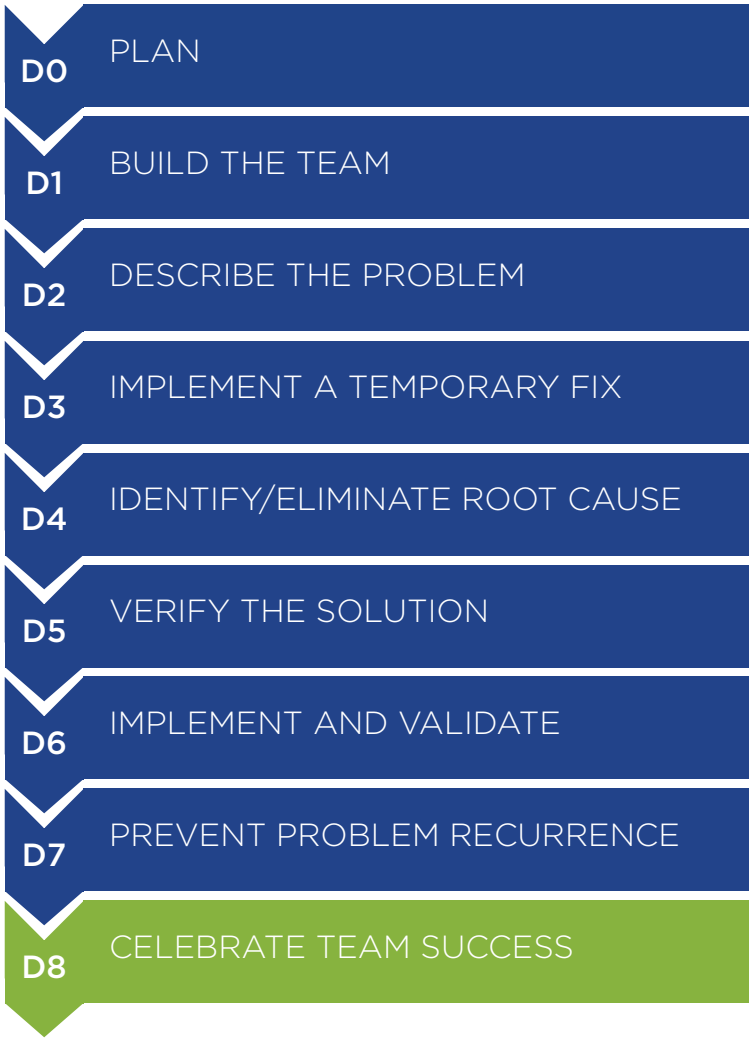
Discipline 7: Prevent the problem from recurring



Once your team knows that the permanent solution has solved the problem, it is time to identify how to prevent the problem from occurring again. By gathering the information regarding the process and solution, real-time data can be gathered by other teams in the future to make necessary changes. Using real-time data to drive efficiency of the production process, allows your team to easily train others and share information to prevent recurrences of the original problem in the future.

When a viable permanent solution has been implemented, your team can use the real-time data they gathered to share with others, preventing the same or similar problem from occurring again. **Since the success you've seen is permanent and quantifiable with real-time data, it will be easier to catch any problems if they arise in the future.**

Discipline 8: Celebrate team success



The last step in the process is to celebrate and reward your team's success. Before the team disbands, use the real-time data gathered from the process to conduct in-depth post-implementation reviews as a way to improve how problems are solved in the future.

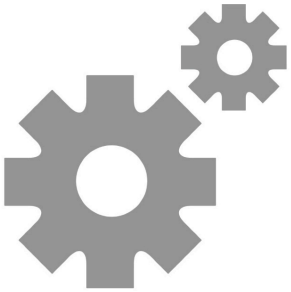
Your organization may also have a celebration to recognize each person individually for their contributions, providing positive reinforcement to the team that drives a culture of continuous improvement.

Why do manufacturing organizations need real-time data to solve problems?

Apply real-time data for solving complex problems and measuring continuous improvement in your manufacturing organization.

Manufacturing leadership is often responsible for one specific department, each with different priorities, daily tasks, goals, and visions. Often, these managers are not aware of the priorities, visions, and goals of other departments in their organization, and there is little communication and collaboration between business units.

In order to get the job done effectively and efficiently, real-time data is a critical component for a manufacturing organization's operational excellence initiatives. With the real-time data used by the team in our example, they were able to develop a permanent solution based on the information they had gathered with new technology, and verify and measure metrics based on their goals.



How mobile apps help your team access the real-time data needed to solve problems

Mobile apps for manufacturing provide access to the real-time data needed to solve problems efficiently.

Manufacturing organizations that have relied on outdated processes and have data that has been siloed in multiple information systems, have difficulty communicating and getting the job done efficiently. With the right technology, such as mobile apps, manufacturers can decrease the amount of time spent trying to develop new processes to fix problems, and now have access to the data they need to get the job done efficiently.

Mobile apps give manufacturing organizations the ability to build a culture of lean, continuous improvement. **With mobile apps that give departments access to real-time data across the organization, operations can develop a unifying vision and gain better operational understanding.**

The benefits of manufacturing apps

- Provide real-time visibility into processes and metrics to measure organizational goals
- Simplify search processes, increase workflow efficiency, and quickly address safety, maintenance, and quality assurance errors and defects
- Provide easy access to data needed to get the job done, drive efficiency, and improve processes.

Visit our manufacturing resource center & learn more about how real-time data drives operational excellence

- Addressing the challenges of relying on paper-based processes to gather data and complete inspections on the shop floor
- How manufacturing organizations are using technology like mobility to accelerate their operational excellence journey

Click here to visit our Manufacturing Resource Center for videos and additional resources

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