

# The Reliability Challenge

How to win in your  
facility

# Take the ABB Reliability Challenge at [www.abb.com/reliabilitychallenge](http://www.abb.com/reliabilitychallenge)

By Shon Isenhour, CMRP

**Now that you have experienced the virtual “Reliability Challenge”, learn the secrets to success in your plant.**

The virtual manufacturing world in the ABB Reliability Challenge gives a sample of some of the dynamics facilities face in the real world. Whether your facility produces coffee grind bricks, antibiotics, gasoline, or orange juice, there are several fundamental tenets and universal rules to increase production profitability. We will reveal several of these elements and provide you with real life examples that confirm our reliability rules.

In fact, our more than 40 years of reliability and plant performance experience craft a guide to reliability, which can lead to a win in our Reliability Challenge and yours. These experiences can be grouped into three core areas: creating a reliable foundation, changing a plant’s culture and ensuring sustainability.

## Creating a reliable foundation

Think of this first step as a twist on the Field of Dreams mantra: If you build it, you will win. To win the Reliability Challenge, you must start with a structured foundation of core elements. These elements must be built in a specific order that is not arbitrary or ad hoc. For example, a company would not implement advanced Predictive Maintenance (PdM) techniques if they did not have proper work control processes. Identified defects could not be planned, scheduled, and eliminated or mitigated properly without these processes. Simply put, PdM without an effective work execution process is like helicopter without a propeller; it may look nice and shiny but it is not going to get you off the ground. Another element used in the Reliability Challenge is Six Sigma. Six Sigma is most successful when stability has been built into the plant system or processes. By having stability, you eliminate one of the variables that will be part of the Design of Experiment, for example. The foundational elements are what provide that stability.

Some of the core foundational elements that must be effectively implemented include:

- Plant Partnerships (How do we work together to create additional value?)
- Continuous Improvement Process (How do we get better, and continue to get better in a sustainable way?)
- Work Processes (What is the right method for performing tasks?)
- Clear Job Expectations (What should I do and how do I prioritize?)
- Training based off of Expectations (What new skills do I need?)

The next element level typically includes features that help make the foundation work more efficiently. These include some of the items listed below:

- Planning and Scheduling (helps get identified work done at a lower cost)
- Root Cause Analysis (refines problem solving and eliminates reoccurring failures)
- Computerized Maintenance Management Systems (improves efficiency and decision making by automating work processes and metrics)
- Preventive Maintenance (optimizes equipment life)
- Predictive Tools (identifies failures earlier in a non-intrusive manner, which doesn’t introduce additional failure mode risk)

All of these elements build a new way of doing business as they are put in place. The next step is successfully motivating your people to invest in this new way of doing work more effectively and efficiently.

## Changing the culture

Communication is paramount to cultural change. You must talk with all levels of the organization in order to really know what is going on in the facility. In the ABB Reliability Challenge, you learn most of the dilemmas that your company is facing through characters on the floor. As leaders, we must foster and grow communication from the bottom up, so you have the best information to make good business decisions.

If you are implementing large cultural change initiatives, such as reliability or Lean/Six Sigma, you must ensure the leadership and/or focus team is addressing change issues. It’s necessary for this team to complete a thorough risk review of the change initiative with input from all levels. The team should consider both the effects of the change initiative as well as the outside forces that could disrupt the progress during implementation. The team can then create the communication plan, which will proactively address many of the risks or concerns and model the new forward-thinking, proactive culture.



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Similar to the real world, taking short cuts in the Reliability Challenge is a recipe for failure. The plant did not morph into its current state overnight, nor will it be fixed in a 24-hour period. Take the time to create a master plan that takes into account your project and communication plans. Don't rush the change if the resources are not available. You cannot do everything at once. Ensure your plan governs the site as a whole, not just your reliability improvement initiatives, as this will help prevent competing initiatives. Also, as you move forward with your initiative, you will have to deal with the day-to-day challenges while creating a future state of reliability. This is simulated in the game by the frequent dilemmas, which reduce your working capital and take time to solve. Make sure you account for that time and money in your master plan. In summation, you do have to be reactive to get proactive – but reactive in a smart way.

### Ensuring sustainability

In order to sustain improvements, you must ensure that the facility understands their goals. Once goals have been established, use metrics so people will focus on continuous improvement.

For the ABB Reliability Challenge, you're measured on Overall Equipment Effectiveness (OEE), Customer Satisfaction, Profit/Loss and Employee Morale. You also have history and quarterly reports to help guide you on your journey. These high-level metrics are important, but you may find that as you implement change, metrics must be adjusted to be relevant and compelling for the audience. For instance, many facilities have never had planned work orders, which contain the details needed for effective maintenance. Because this is a big change to the system, many facilities choose to measure planned work, which drives improvement at the lowest level. This metric does not have to be in place forever, only until

the culture changes and planned work orders become the norm. At that point, we can focus on other changes or metrics.

Once metrics have been established, our experience suggests it's important to drive continuous improvement, as some elements naturally degrade over time. Lean, Six Sigma and RCM – all of which are represented in the Reliability Challenge – provide the processes and tools for continuous improvement.

While we are on the subject of Lean and Six Sigma, let's discuss the role that Reliability plays in preparing the facility for these changes. Reliability supports Lean by providing the stability that is required to reduce in-process inventory and other sources of waste. That same stability reduces the variability that can affect a Six Sigma Design of Experiment. It is not to say that Lean or Six Sigma will not work in an unreliable plant, but rest assured, they will not be as effective. Process reliability is the supercharger for your other initiatives and together they work to ensure your site's sustainable success.

### In conclusion...

There are no silver bullets to solve reliability or plant issues just like there is not one single path through the forest. However, when you have a foundation built on best practices, a clear plan backed up by good change management, and established continuous improvement; you have the winning combination to conquer the challenge.

Now don't forget the most fundamental rule of any game: practice makes perfect! Enjoy the ABB Reliability Challenge and practice the game of change, so you can win our Reliability Challenge and yours!

# Contact us

## **ABB Inc.**

579 Executive Campus Drive  
Westerville, Ohio 43082, USA  
Phone: 877-234-6756  
Fax: 614-818-6557  
E-Mail: [Reliability.services@us.abb.com](mailto:Reliability.services@us.abb.com)

## **ABB México, S.A. de C.V.**

Avenida Central No. 405  
Parque Industrial Logístico  
C.P. 78395  
San Luis Potosi, SLP  
Teléfono: +52 444 870 7382

## **ABB Ltd.**

10300 Henri-Bourassa Blvd. West  
Saint-Laurent QC H4S 1N6, Canada  
Customer Service Center  
Phone: 1 800 665 8222  
Fax: 514 332 8357

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