Pinnacle eBook

# Observations and Tips for Reliability and Integrity Technologies

This e-book will discuss observations and tips for selection and implementation of reliability and integrity technology solutions.

# Table of Contents


- Industry Challenges
- Additional Factors that Affect Technology Value
- Software and Technology Alone Is Not the Answer
- Four Tips to Maximize the Value of Your Technology
  - 1: Assess and Prioritize Business Needs
  - 2: Paint Full Picture of Value, Costs, & Challenges
  - 3: Optimize Program to Ensure Value
  - 4: Harness the Power of Dashboards & Metrics
- Conclusion and Takeaways

# Industry Challenges

Process industries face many business challenges: environmental, safety, cost pressures, labor shortages, siloed data, etc. While technology solutions present opportunities to improve efficiency, data visibility, and decision making to solve many of these business challenges, many companies struggle with both technology adoption and implementation. Then, when companies fail to realize value, they typically blame the software without addressing factors within their control that could be affecting the value received from the technology.

# Additional Factors that Affect Technology Value

**Culture**

A company should ensure whatever type of technology they are implementing will align with company culture. Some helpful questions include: “Are we a company built on a reactionary type of culture and we’re trying to implement a proactive tool? Are we a check the box system, but we’re trying to implement a piece of software that requires us to be very detail oriented?”

**Lack of management support**

Another challenge we see is the lack of management support. Management may support something right at the beginning, but then the support fades over time as challenges come up and resources become short.

**Poor data and poor work processes**

Poor data and poor work processes are other common themes frequently seen across the industry.

**Lack of understanding of total and ongoing program costs**

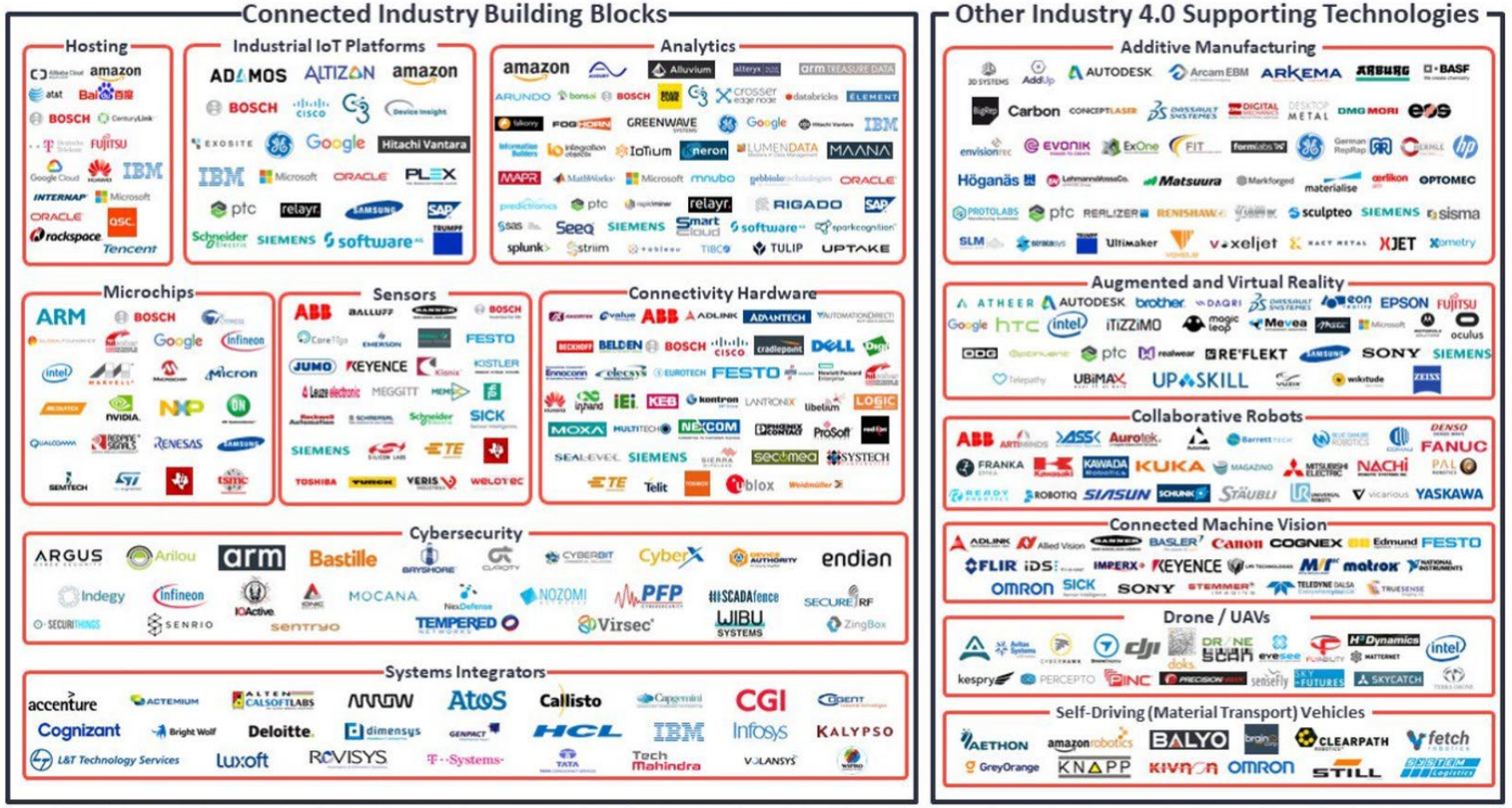
We’ve observed that companies typically don’t have a full understanding of what an initiative will take to it make it successful. In terms of understanding the overall program costs—whether it's people, dollars, or work processes—a lot of time is spent to get things going. Then, down the road, companies struggle when they didn’t realize they needed to plan for something. For example, a company may implement an RBI program, but didn't realize they needed a full-time RBI analyst to help maintain and do the analysis.

**Software mismatch between capabilities and requirements**

Another factor affecting technology value involves the mismatch between what the company is looking for and what the application provides. Companies get excited about a piece of technology—we call it the “shiny rock” syndrome; they see an application, like it, and zone in on it.

# Software and Technology Alone Is Not the Answer

Thousands of applications exist and technology changes quickly. The figure displays a snapshot of the many applications available. There are many solutions that promise millions of dollars in return on investment, which companies are not realizing in the long-term.



# Four Tips to Maximize the Value of Your Technology

Whether you're dealing with your IDMS system, CMMS, operator rounds program, process historian, alarm management, etc., here are the four tips we'll be breaking down to maximize the value of your technology.

1. Assess and prioritize business needs

2. Paint full picture of value, costs, and challenges

3. Optimize your program to ensure value

4. Harness the power of dashboards and metrics

# 1: Assess and Prioritize Business Needs

**Assess Needs Before Looking at Software**
Understanding needs and prioritizing them is critical when it comes to realizing value from your technology. Thus, our fist tip is to truly assess what is it that you need for your particular challenge. Before looking at any sort of technology solution, we recommend that companies first identify what is needed from a solution that will deliver value and solve problems. This can be divided between what is *critical* and what is *nice to have*. For the critical things, if the technology does not have it, it's a no-go. Nice to have, on the other hand, includes things that would be good to have but major challenges would still be solved without it. For example, if a software has an awesome feature that's on your *nice to have* list but the *critical* thing that you need is not done well, it will cause challenges.

**Properly Vet the Application's Functionality**
We also recommend properly vetting the application to validate that the technology does what the vendor says it does.

For example, a vendor may say their solution will provide the ability to analyze the criticality of all of your assets very quickly. In your mind, you develop what you think that solution looks like. And if we asked 10 different people, they would have 10 different ways that could work and be successful.

To validate the technology, you can:

- Pilot or evaluation period
  - Depending on what the vendor allows, bring the product in-house through a pilot or evaluation to assess whether it truly meets your needs. If you're needing an asset criticality system, is this the best way to go?
- Engage other customers to get feedback
  - Talk to others that have used or implemented the application to learn what they like about it, what did they do not like about it, lessons learned, etc., Try not to solely use the list that the vendors provide—this list will include people who may be more geared towards a positive spin.

**Recognize That Every Application Has Positives and Negatives**
Every application has advantages and disadvantages. There will be things one thing is great at while also struggling with other things. Again, it's Important to identify what's important to you, your company, and your business goals to align the strengths of the application with your critical needs. On that note, don't end up in a situation in which a vendor promises to work on something down the road and you're stuck waiting with an incomplete solution.

# Assessment Example

The figure shows an assessment looking at needs and comparing them with solution "options." Here, different needs are listed, and each need is given a priority ranking—5 being the most critical, 1 being the least critical. Then, the criteria are compared to various applications to compare how well they meet the particular requirements.

At the end, each application receives a score for how well it meets requirements. This assessment is not meant to identify a number one choice; it's meant to provide a frame of all the different solutions and identify which options best meet needs. So, from this, you'll receive a top three or four to drill down into.

| ID | Criteria | Priority | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 |
|---|---|---|---|---|---|---|---|---|
| 1 | Ease of Use: Simple, Intuitive, User Friendly | 5 | 2 | 1 | 3 | 4 | 2 | 1 |
| 2 | Connect with SAP for Workflow and Anomaly Repair | 4 | 5 | 3 | 3 | 3 | 4 | 3 |
| 3 | International for Language, Unit of Measure, and Date | 5 | 5 | 1 | 2 | 4 | 4 | 1 |
| 4 | Ability to Customize | 4 | 3 | 4 | 1 | 4 | 4 | 2 |
| 5 | Ease of Mass Updates of Data | 5 | 1 | 3 | 4 | 3 | 3 | 3 |
| 6 | Basic Asset Data; Connects to Single Source of Truth | 4 | 5 | 4 | 3 | 2 | 4 | 3 |
| 7 | Centralized Access to Real-Time Data and KPI Reporting | 5 | 4 | 4 | 3 | 3 | 4 | 3 |
| 8 | Ease of Managing Inspection Tasks. Mass Editing and Consolidated Scheduling | 4 | 3 | 4 | 3 | 3 | 3 | 3 |
| 9 | Thickness Data Management: Remaining Life, Alerts, Link to Drawings and Datalogger | 5 | 3 | 4 | 5 | 4 | 3 | 2 |
| 10 | API 581 Methodology for All Equipment Types | 5 | 2 | 1 | 5 | 2 | 1 | 5 |
| 11 | Include Customer's Custom RBI methodology (RAT/RVIFT) | 4 | 3 | 5 | 1 | 2 | 4 | 3 |
| 12 | Analysis Transparency | 4 | 4 | 4 | 3 | 4 | 1 | 1 |

# 2: Paint Full Picture of Value, Costs, & Challenges

Whether you're implementing something for a first time, you're re-implementing something, or you're trying to make improvements for the long haul, you need to understand the full picture of the costs, what your individual challenges are, and the value you want to receive from the application. Here is a list of items to identify that will help to secure management buy-in and support.

- Impact on resources
- Cultural and work process changes
- Review change management strategy
- Realistic costs
- Value drivers
- Current state and challenges
- Roadmap

**Impact on resources**
The first thing is to understand how resources will be impacted. Will you need more resources? Will less resources be required? How will jobs change after implementing this application?

**Cultural and work process changes + change management**
The next thing involves knowing your cultural and your work process challenges. Do you have a reactive culture and you're trying to implement a proactive tool? What are the things you're going to put in place to help address your challenges to help transition to a new system? This will typically involve a change management program as well. We've heard from a change management expert that it takes someone hearing something seven times for it to fully sink in. Knowing that piece of information, form a strategy for how communication will go—from introducing the initial idea, identifying your goals, setting value drivers, and all the way up to the implementation.

**Realistic costs**
Have a realistic set of cost expectations—not just the cost to implement, but also the cost to maintain going forward. Typically, when you have a technology solution, it's going to require that someone take ownership of it and then set up all the work processes and then assign responsibilities for those work processes going forward. So, understanding what it will take to be successful over the long haul.

# 2: Paint Full Picture of Value, Costs, & Challenges Cont.

**Value drivers**

What are your value drivers? Will this solution truly enable you to achieve the value you're looking for, whether that be cost reduction, improved reliability, reduced incidents, etc.? Make sure you have all the things in place—the resources, the culture, the change management—to drive that value you're looking for.

**Roadmap**

It's important to define your path from where you're starting and where you're trying to go. A lot of companies tend to put on rose-colored glasses and think they can start using a new software and it will solve all their problems, but that's not the way it works. Knowing current challenges, past struggles, people needed, and change management practices will help to build your roadmap to get from point A to Z. Creating your roadmap helps set perceptions so that when you stumble along the way—and there are usually stumbles—you still know your plan and can adjust as needed to continue toward the goal. So, your roadmap should bring everything together to help make your solutions successful in the long run.

# 3: Optimize Program to Ensure Value

The third tip is to look at all the things you're doing—whether it's a mechanical integrity program, a reliability program, operator rounds—and take notes regarding things being done to address goals (e.g., taking fitness readings to mitigate any kind of corrosion issues, taking operator rounds issues to really get a handle on pump seals, etc.,).

You want to make sure you're doing the things that are going to help address the cost you're trying to reduce or the value you're trying to generate. For example, if you want to implement a thickness monitoring program that helps reduce your corrosion incidents down to zero, you need to make sure you're looking at the areas of your facility that are actually susceptible to corrosion issues. We've seen a number of customers over the years do a scattershot approach by looking at everything and everywhere. This ends up being costly. And yet, these companies also have a lot of issues because they may not be looking in the right places or at the right time.

**Data**

Many companies think they can move data from their old system into their new system with the plan to clean it up down the road. This practice is not a good way to ensure success for your program. In fact, it will mire it and prevent you from having that success you're looking for. When implementing a new system, we recommend cleaning your data so that from day one in the new system you can have the right data and the right information.

**Asset Strategies + Resources**

When you look at optimizing your program, you want to go through and identify the various risks you will encounter, the likelihoods, the consequences, and then focus your strategies around those particular risks so that you can focus your resources on doing the right things at the right time.

Accurate data and appropriate strategies are critical

- Cannot migrate junk data into a new system and expect different results
- Clean Master equipment list and proper hierarchy
- Identify appropriate asset strategies
  - Understand your damage mechanisms or failure modes (risks)
  - Understand likelihood and consequence
  - Develop strategies that address your risks
- Optimize your resources effectively
  - Scattershot vs. targeted

# 4: Harness the Power of Dashboards & Metrics

Dashboards should empower you to make better decisions

- Provide powerful analytics
- Allow you to identify at-risk assets and act
- Facilitate day-to-day activities
- Assess the effectiveness of your program

Tips for dashboards & metrics:

- Remember your audience
- Utilize meaningful metrics
- Keep dashboards simple
- Allow for drilldowns
- Test to confirm everything works

The last tip we'd like to discuss involves harnessing the power of dashboards and metrics to help your program be successful for the long-term. Dashboards present information that can help you identify areas that need to be addressed—whether that be inspections coming due, areas that that are approaching Tmin, etc. Dashboards can help us to make sense of all the data and information we have coming in. They provide analytics to identify where you need to take action to mitigate failure and facilitate day-to-day operations. They can help identify what you need to do today, this week, and even the next 90 days or what do you need to be doing in the next turnaround. A dashboard will help you stay on top of all those things. It also helps you in a more longer-term perspective to assess the effectiveness of the overall program. Are you realizing the value that you're trying to get, or do you need to make some course corrections?

# How to make dashboards more effective:

**Remember your audience**
We always recommend making dashboards role-based, meaning, you make a specific dashboard focused on an individual role. Instead of having one dashboard that tries to serve everyone, keep the dashboards focused on the individual level to give them the information they need. Everybody has targeted information they need to see, and you can create a tailored dashboard with meaningful metrics needed for said role.

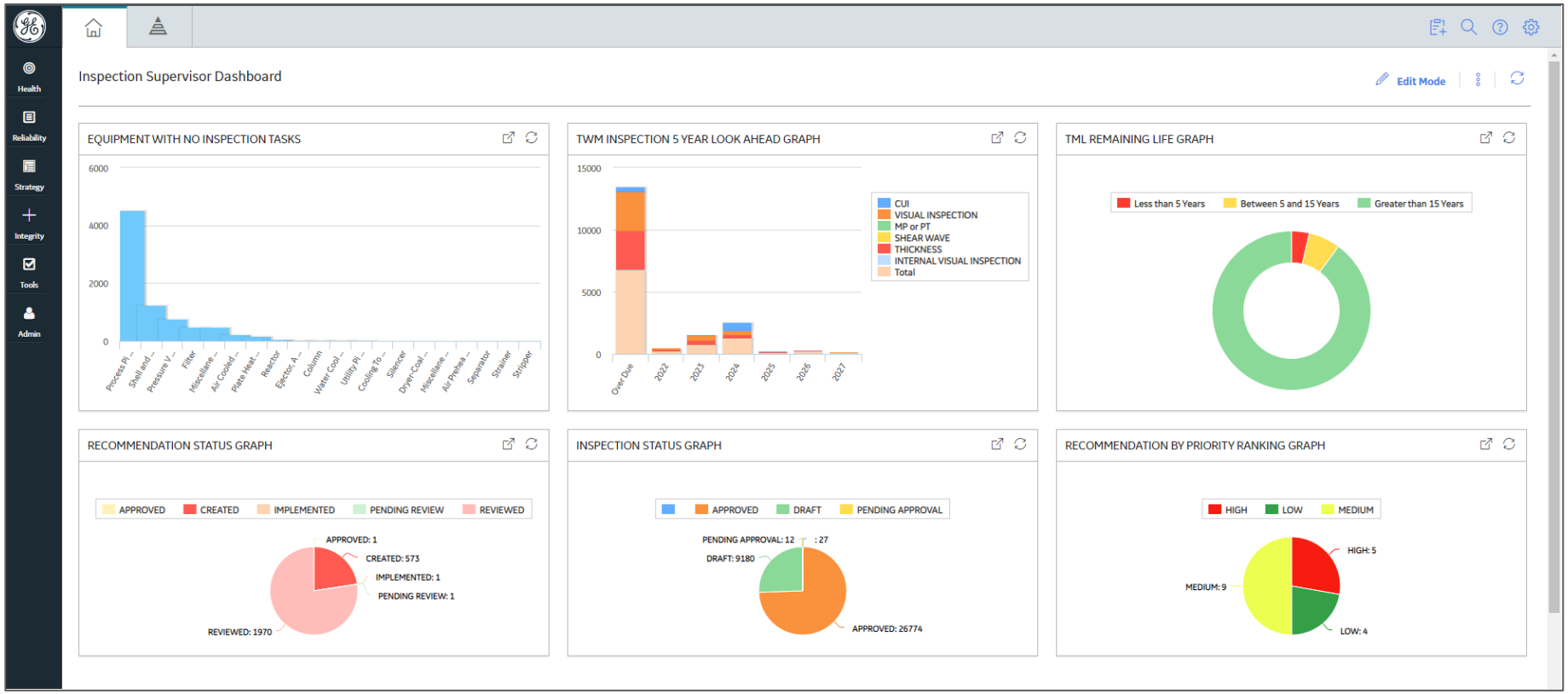
**Utilize meaningful metrics**
When creating a dashboard targeted to an individual role, it's important to identify meaningful metrics that that person needs in their role. For example, an inspector may want to know what inspections have been started, what inspections are coming due, which areas need to be checked on, what were recommendations noted last year that have now been completed, etc.

**Keep the dashboard simple**
A lot of times, people get impressed with developing "cool" graphs and charts, but it's important to keep a dashboard simple so that the user has quick visibility into the information needed. We typically recommend keeping widgets down to around 8-10 per dashboard. If a dashboard has too many widgets, it can become overwhelming for the user, which can also affect performance. Additionally, it's not very user friendly to have a dashboard jam packed with information but it takes 10 minutes to load. So, you want to make sure to keep things simple, clean, and sharp.

**Allow for drilldowns**
Regarding dashboards being useful, it's good to allow a drilldown to see more information. For example, if you have a donut chart that shows you TMLs that are going to reach retirement within the next ten years, allowing the user to click and drill down to see what are those particular points that need to be investigated. Then they can try to understand, "do we need to clean up our data or do we need to adjust or do more detailed observations and calculations for that?"

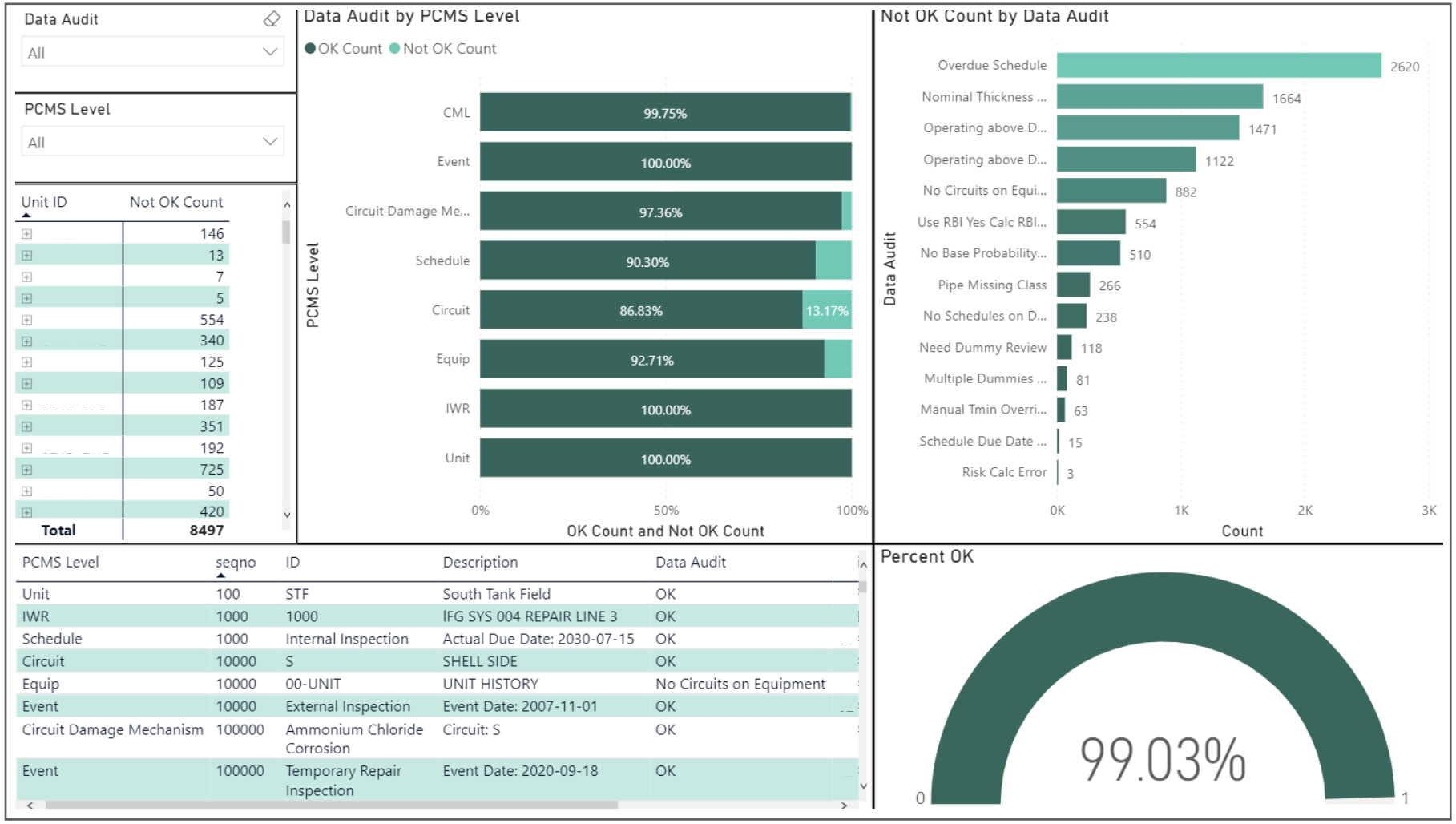
# Dashboard Example #1

Now, let's take a look at some example dashboards. Here is an example of a clean and simple dashboard.



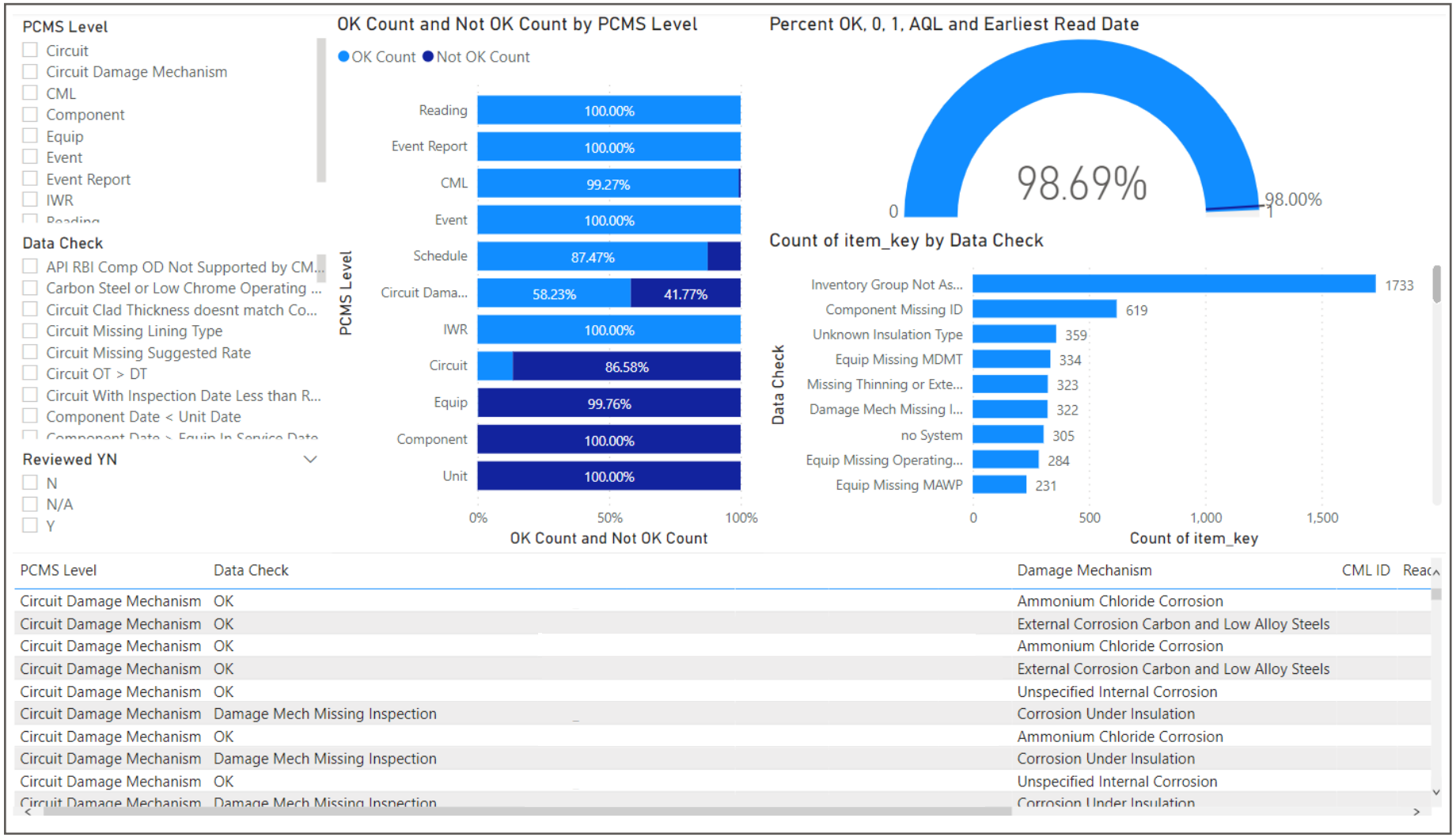
# Dashboard Example #2

This dashboard is a bit different in terms of use of color and technique but still focuses on presenting meaningful information for its user.



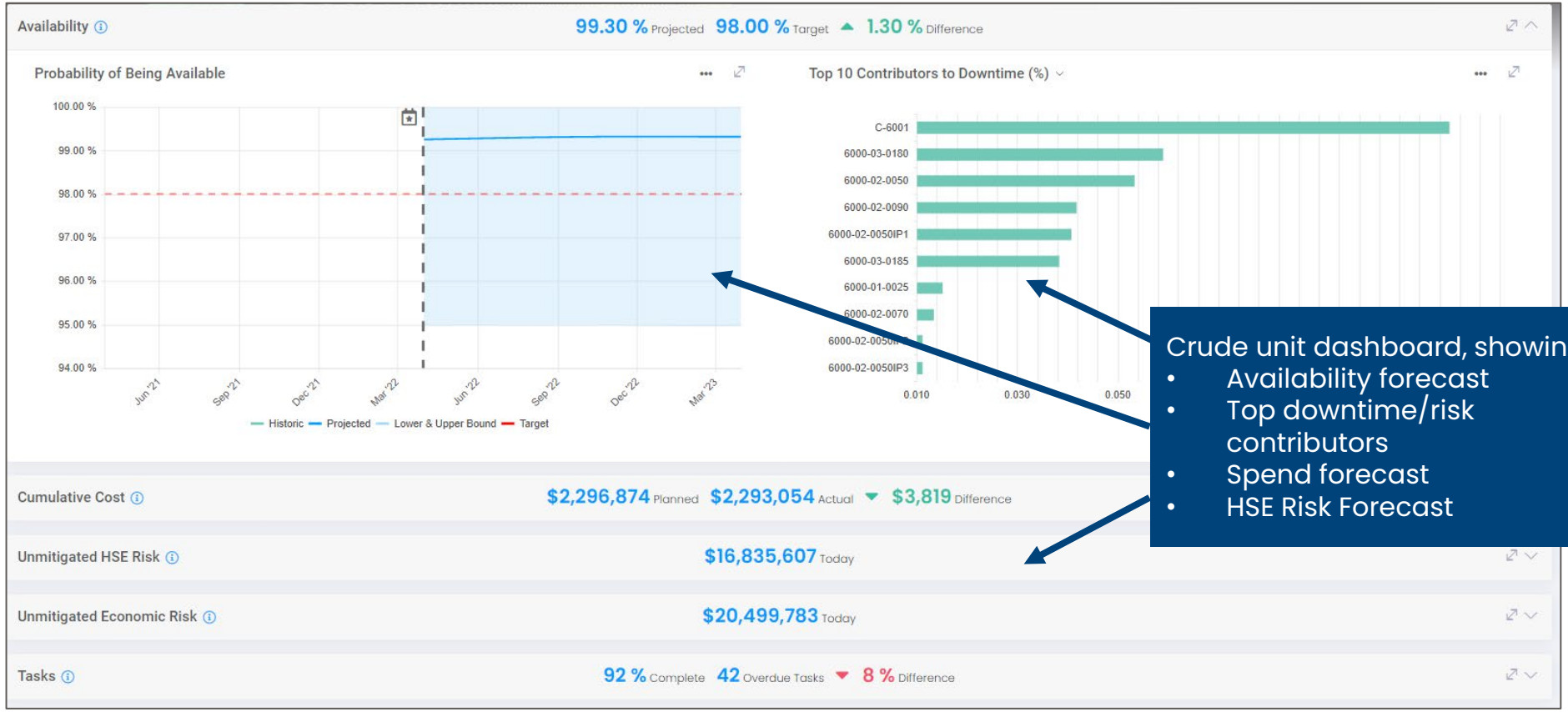
# Dashboard Example #3

This dashboard is an example of a more challenging dashboard. It presents a lot of information but it's harder to read than the first two examples.



# Dashboard Example #4

Here is an example of a dashboard geared toward management. It includes key areas of concern for them, such as availability forecasts, downtown contributors, spend forecast, and so forth.




Crude unit dashboard, showing:

- Availability forecast
- Top downtime/risk contributors
- Spend forecast
- HSE Risk Forecast

# Conclusion and Takeaways

This e-book has presented ways to be successful with your reliability and integrity technology solutions.

**Major Takeaways:**

- Properly assess and prioritize your needs and compare to application capabilities and strengths/weaknesses
- Provide management with full picture of value, costs, and challenges to gain their support
- Optimize your program to ensure value
- Harness the power of dashboards to manage your program and its overall effectiveness and integrate key data to provide fuller picture