



Follow the Data: A Step-by-Step Guide to Mastering Operational Agility

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In a world of supply chain disruptions, labor shortages and shifting consumer demand, mastering operational agility has become a prerequisite for success. The ability to quickly react to changing conditions is important, but anticipating change – and acting accordingly – separates “best in class” from “rank and file.”

At first glance, this practice might seem like the stuff of science fiction or reserved for only those organizations with large budgets and an army of data scientists. However, the hyper-connected nature of today’s industrial and consumer environments, combined with the vast volume of data they generate, makes getting ahead of change simple, impactful, and surprisingly affordable.

This post explores the seven distinct stages of operational modernization and, more importantly, how you can use this model to improve efficiency, boost OEE, and drive continuous improvement.

Stage 1: Digitize

- **Description:** Smart devices, controllers, and other pieces of connected equipment are both affordable and readily available. Introducing this level of digitization into your operational environment will create efficiency, as well as generate significant amounts of data that can be used to fine-tune performance.
- **Benefits:** Smart devices deliver levels of precision and insight that are simply unattainable using conventional equipment.
- **What Next?:** As you introduce more pieces of intelligence into your operating environment, connecting them together to create a virtual model – a “digital twin” – of your operations will allow you to gain deeper levels of insight into your organization.
- **Pro Tip:** If you have yet to digitize your operations, don’t become paralyzed by “boil the ocean” thinking. Begin introducing smart devices in areas where you feel you have the least amount of insight into operational conditions or are experiencing ongoing issues. This will allow you to start the digitization process in a way that drives immediate, tangible results.

Stage 2: Connect

- **Description:** Once you've begun collecting data from each device within your operating environment, you can begin modeling the entire production environment to see how it behaves as a whole.
- **Benefits:** Aggregating and analyzing this data will yield insights into the performance of individual pieces of equipment, as well as how the entire system works as a whole. Armed with this information, you can focus your energies and resources on addressing the operational improvements that will make the greatest impact.
- **What Next?:** Once you've leveraged that data to address your needs within your operational environment, leveraging data from other systems throughout the enterprise can yield even greater results.
- **Pro Tip:** Automated data agents make it easy to identify, tag, and collect information from every data source within your operating environment. Leveraging a platform that utilizes these agents will have you up and running in minutes, no matter how extensive your operation may be.



Stage 3: Visualize

- **Description:** Transforming raw data into actionable information is a critical next step. Creating dashboards and other data views allows you to “see” what’s occurring within individual pieces of equipment and the operation as a whole.
- **Benefits:** Your operators will be empowered to focus on areas that will improve operational performance, as well as prevent small anomalies from becoming larger and more disruptive issues (equipment downtime, component blow-outs, etc.).
- **What Next?:** Seeing what’s happening is great - understanding why it’s happening is better. The next step is to implement the ability to identify root causes.
- **Pro Tip:** Keep your in-house experts (engineers and operators) front and center. Speed to value can only occur with your subject-matter experts leading the way.

Stage 4: Interpret

- **Description:** Now that you're applying time-series / historical data analysis and hierarchical data models, your internal teams can identify why something is happening and take the appropriate action.
- **Benefits:** With a greater level of understanding into why a particular event is happening, your operators will be better equipped to see an issue and stop it from compounding.
- **What Next?:** Once you've gained the ability to fine-tune and optimize operations based on past and current data, you can begin to create predictive models that empower you to drive greater efficiency, quality, and agility.
- **Pro Tip:** Technology that visualizes the operational information so it's easily interpreted will accelerate time-to-resolution and improve other operational metrics as well.



Stage 5: Predict

- **Description:** AI Models and machine learning are being applied to your data to predict what will happen with your equipment, should a particular set of circumstances continue or remain unchanged.
- **Benefits:** This capability will allow you to actively avoid defects and inefficiencies within current operations, as well as try various "what if" scenarios and predict outcomes with a high degree of accuracy.
- **What Next?:** With the ability to predict what will most likely occur, it's now time to tighten your processes and eliminate key drivers of anomalies and issues.
- **Pro Tip:** Getting to this point. Your operators should be supported to make improvements fast (in a matter of days).

Stage 6: Expand

- **Description:** Once your models have been established and you're proactively addressing operational issues, broadening the pool of data to include other systems and solutions from around the enterprise (MES, ERP, etc.) will make your models even more accurate and efficient.
- **Benefits:** Understanding potential areas of concern both upstream and downstream of the operations you've just modeled will provide a broader view and enhance your ability to react to and anticipate change.
- **What Next?:** Continue to interpret, evaluate, tweak and hone - continually uncovering opportunities to improve.
- **Pro Tip:** As you begin to pull in data from other sources, remember the old "garbage in / garbage out" adage. Ensure the data you're leveraging is clean, accurate, and complete.

Stage 7: Control

- **Description:** Develop a mindset that's rooted in a determination to continue optimizing operations at scale.
- **Benefits:** Making positive and effective changes is important, but maintaining improved performance is critical. By continually monitoring and adjusting operations, you can ensure your optimization efforts remain in place and serve as a foundation for additional growth.
- **What Next?:** Encourage your operations and data teams to explore new ways to leverage the data, expand operations, and identify ways you can leverage similar principles in other locations or other parts of your business.
- **Pro Tip:** Get to this stage faster by leveraging a single platform that addresses ALL of these key stages of the process vs. point solutions (e.g. downtime application, data historians, etc.) that only offer a piece of the puzzle.

After reviewing these stages, where do you feel you land? Once you know where you're at, you can decide where to go next and determine what you need to get there.

No matter where you are on this journey, TwinThread's [Predictive Operations Platform](#) can support your next step. [Contact us here](#) to describe where you are on your operational journey - we'd be happy to show you how we can supercharge your continuous improvement.