



As Managing Director, Technology for TBM Consulting Group, Brian Tilley combines client-facing consulting and advisory with his many years of “boots on the ground” experience to lead product development and drive growth for TBM’s web-based software, Dploy Solutions.

Brian Tilley

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Brian Tilley has spent more than 25 years in manufacturing and technology leadership roles. As Brian describes it, he spent the first half of his career “wearing the hardhat,” designing and implementing technology solutions. He’s since focused on delivering clear business outcomes as a sales, operations management and consulting leader.

With experience in both continuous process and discrete manufacturing operations, Brian has worked for consumer goods, chemicals, mining, oil and gas, electronics and electric utility companies. Throughout his career



he has focused on “lighting up manufacturing,” exposing what’s happening inside plants using M2M, SCADA, IIoT, manufacturing intelligence, and other manufacturing IT systems.

Prior to joining TBM Consulting Group, Brian served as an executive-at-large for a global consulting firm. Before that he was COO of a remote-monitoring, SaaS company serving the water/wastewater and oil and gas sectors. He spent 17 years in the chemicals and mining sectors leading IT and control system transformations.

Brian earned a Bachelor of Science in Chemical Engineering from the University of Kansas and an MBA from Wichita State University. He lives in Highlands Ranch, Colorado with his wife, teenage sons and three dogs. He currently spends his weekends at high school sporting events, camping in the mountains and lovingly restoring a 1967 Chevy Chevelle SS. [Connect with Brian on LinkedIn.](#)

We recently sat down and interviewed Brian to learn more about his process for "lighting up manufacturing". Get to Know Brian Tilley, Managing Director of Technology for TBM Consulting Group. He offers manufacturing business leaders his perspectives on the industrial internet of things, advanced analytics and cognitive manufacturing.

Take the Lid Off Your Factories

For a long time people have looked at manufacturing as a black box. Inputs go in, and outputs come out. I’ve spent my career “lighting up manufacturing.” That means helping people see what’s going on inside their plants and how well they’re doing. Salespeople need to know, at the most basic level, if they get an order for a thousand units, how many are in stock or if the order will take two to three weeks before it ships.

Process vs. Discrete: More Alike than Different

People often separate process and discrete manufacturing. Process folks



make “stuff,” and discrete people make “things.” I’ve worked in both types of operations and they’re really not that different. You might have stuff that flows through a pipe versus down a conveyor belt, but you still have to do something to that work-in-process, and eventually chop it up. There are improvement opportunities at each step in the process. Improving visibility in both types of operations is very similar.

Industrial Internet of Things: Old Hat, New Hat

In process industries we’ve been monitoring every inch of the plant for 30-plus years. As an instrument and controls engineer I designed systems to measure pressure, temperature, flow and vibration at every point in the process, which we connected to Ethernet networks. That information density has been around for a long time. It has now become a lot more affordable and practical; the use cases in process industries are becoming financially viable in discrete operations.

Your Plant Has Something to Say. Are You Listening?

We’ve long passed the value point for descriptive analytics, which reports what happened. We’re almost past the value point for diagnostic analytics, which explains why things happened. Today, everyone wants to use predictive analytics to determine what will happen next, to predict the likelihood of something occurring or repeating. It can be applied everywhere. When will your next accident or quality issue occur, for example, and how much it will cost to fix? Those are very predictable.

Prescriptive analytics are the next step. It will be a while before it becomes mainstream. It goes from: 1) I know what happened. 2) I know why it happened. 3) Here’s what will probably happen again. 4) Here are several suggestions (for the machine operator, plant manager or quality technician) to head off or eliminate the problem. Prescriptive analytics mitigates the risks.

Cognitive Manufacturing Closes the Loop

When prescriptive analytics make recommendations, and a choice is made, the issue may be avoided or only partially mitigated. The system has to learn from that outcome, whatever it is, and factor it into future

suggestions. This is where cognitive manufacturing and artificial intelligence come in.

Cognitive manufacturing, or cognitive analytics, requires a closed loop. The machine or system or environment learns from previous choices and uses that outcome to determine the best course of action the next time a particular set of variables arises.

For example, responding to equipment readings, a cognitive system may make a number of suggestions to avoid an impending quality issue that could generate thousands of dollars of scrap. Those suggestions could include changing a temperature setting, slowing the line down or performing maintenance on a particular piece of equipment. If the operator chooses to change the temperature, and it doesn't mitigate the issue, a cognitive system will take that information and make different suggestions the next time. Closing that loop is a human step that's not baked into the way we work.

Right Tools, Right Parts, Right Knowledge, Right Time

Here's an impressive example of artificial intelligence application. I didn't work on this project directly, but had the opportunity to learn about it in depth. It's a military project focused on vehicles that have a high tendency to break down. Using artificial intelligence, they're able to predict when those vehicles will fail. In anticipation of the next failure, the system summons the right maintenance vehicle, makes sure the right tools and parts are on the truck, ensures that the technician coming to work on the system is qualified, and loads all of the necessary diagrams and procedures onto his mobile workstation. The right tools, right parts and right knowledge all come together at the right time to get in front of a problem that's about to happen. That's a maintenance holy grail.

Alignment: Successful Solutions Require Full Buy-In

When working with our clients, the most successful projects are the ones when everybody agrees on the problem, they agree on the probable solution, and we agree on what the targeted outcomes are going to be.

It's hard to get people to work toward a solution if they can't see what needs to be fixed. Likewise, if people don't agree that a solution will deliver the desired outcome, it's hard to motivate them to make their best effort implementing it.

Whatever you try to do, culture change requires the most time. I was recently at a plant doing some training. One of their housekeeping signs said, "If you see it, pick it up." Don't ask who dropped whatever is on the floor, whether it's a piece of paper, cigarette butt or a piece of strapping, just reach down and pick it up. The managers there said it took a year for their people to get that message. And plenty of trash cans.

Weekends Are for Getting Your Hands Dirty

Our family usually likes to get outdoors and up into the mountains on weekends. But right now my sole focus is on restoring a 1967 Chevy Chevelle SS with my 16-year-old son. He is a huge car fan. I told him there's no way I can work on or afford one of the newer sports cars, so we looked for and found an old muscle car. This week we're replacing the suspension. We're taking 51-year-old metal off this car and putting it back together with brand-new suspension, steering and brakes.

As Managing Director, Technology for TBM Consulting Group, Brian Tilley combines client facing consulting and advisory with his many years of "boots on the ground" to lead product development and drive growth for TBM's web-based software, Dploy® Solutions. Brian brings deep experience leading teams involved with Industry 4.0, the industrial internet of things, analytics and digitization implementations in manufacturing companies. He will be responsible for developing additional technology service offerings that will drive significant value for TBM clients.