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## LEONARDO - IOT, BIG DATA, ARTIFICIAL INTELLIGENCE – I WANT IT! Start with MII and MES to Get You There!

At TechEd, I drove a miniature “sensor-tagged” vehicle through a maze of obstacles. The goal was to drive the vehicle quickly through the maze without hitting any of the obstacles.

It was challenging, and my kids and grandkids could have kicked my butt in this game.

The point of the game was to demonstrate how to track deliveries or school children on buses, and how you can monitor their route and progress. The premise is how to use technology to compete, digitize and transform the business.

At dinner, we discussed how much fun it was to play the game and talked about some of the cool things that are emerging in this area. However, one of our guests mentioned that while it was great to see these toys, they had to get more from their current data collection systems before talking about tracking vehicles, machine learning, Big Data and other leading-edge initiatives.

We got into a fascinating conversation on how to get the best of both worlds – a bimodal approach. Get more from your current systems and still have the bandwidth to initiate new exploratory projects like IoT, Machine Learning, and Big Data.

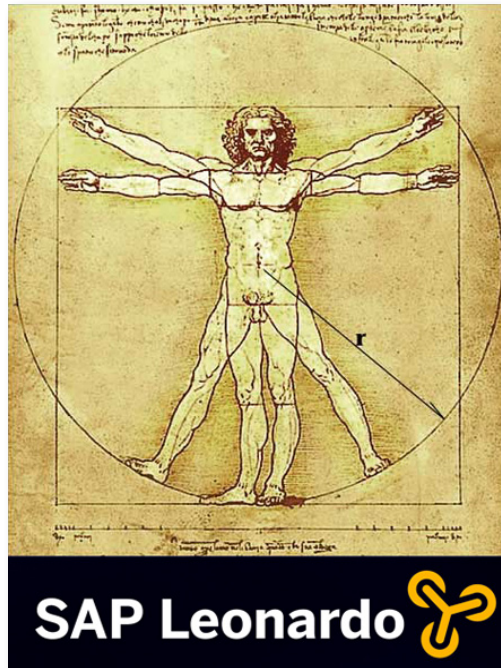
The path that we guide many clients on their journey follows these straightforward steps:

- Step 1 – Automate the Shop Floor
- Step 2 – Building a Preventative Shop Floor
- Step 3 – Migrate to a Predictable Shop Floor

For this article, we will focus on Automating the Shop Floor.

### **The Journey of 1000 Miles begins with the First Step!**

Where are you today? The best place to start your journey to



IoT, Big Data, and Machine Learning is to have a reality check on where are you today?

The goals of automating the shop floor benefit COO's, Controllers, Asset Managers, Maintenance Teams, Front Line Employees and other stakeholders.

If you automate, you should expect to improve:

- Product Output and Quality
- Equipment Efficiency and Effectiveness
- Employee Morale and Safety

What data are you capturing? If you are on the path to Machine Learning, Big Data or IoT, you will need to know what data to capture and is it the right

data. An objective of shop floor automation is to standardize processes and data models.

From our experience, many shop floors in the US and other countries have a hodgepodge of equipment; some old, some new. Standardizing on common processes is not always possible due to the age and technology of the equipment. Modern equipment is easier to automate as it has the capabilities built into the equipment.

We encourage our clients to standardize and harmonize on consistent data and analytics models – everyone capturing and measuring the same things!

One of our customers uses SAP's MII for their shop floor data collection and analytics system. This extrusion manufacturer of plastics uses common metrics to help them manage products and machines.

For product metrics, they capture over 50 quality and quantity metrics: weight, length, thickness, color, surface, batch, and

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other traceable metrics that are shared with their customers, support product quality and traceability, and analytics.

They found out that tracking smartens their business and puts them on the path to other initiatives such as Big Data and Machine Learning.

### **Improving OEE:**

The equipment metrics support their OEE objectives for Equipment Efficiency and Effectiveness. Some of these metrics include runtime by machine component, temperature, and throughput. Accumulating these metrics help the maintenance team build their decision support for their preventative maintenance initiatives.

One challenge they faced, equipment was being transferred from one location to another. The company would downsize one plant and move lines of equipment to a location where demand and capacity required it. But tracking of the equipment as part of the move was often lost, and the new maintenance teams struggled to stay on top of the maintenance plans.

These metrics along with the equipment work order history now allows them to develop rules for maintaining the specific lines, and components. In their business, an unplanned equipment outage can cost tens of thousands of dollars in missed delivery dates, customer delivery penalties, and goodwill.

### **Hang a Jumbotron!**

Are you looking for a quick win? Hang a monitor for each line and one for the entire floor or plant and keep score!

One of our customers enhanced their shop floor operations simply by hanging a monitor at the end of each line. After getting feedback from the shift managers, automating the shop floor improved the processes on the lines, but did not engage the employees.

They were afraid of losing their jobs to automation, robots, and technology. The client supported an open and candid work environment and discussed how the automation investments were mutually beneficial.

One solution, hang a Jumbotron to keep score. It does not have to be as big as the one in AT&T Stadium in Dallas. One large enough that line and shift workers can see their progress by lines, shifts, and plant, together as a team.

Some friendly competition ensued and surprisingly – not – yield improved, output increased, and change over time was reduced.

Another byproduct of this decision: plant morale improved, injuries and sick days trended down, and output increased.

Is your Shop Floor Automated? Is Shop Floor Automation or MII meeting your expectations? Are you on the roadmap to Leonardo? Our Advisory Services Consultants have the business process and technology experience to streamline your Supply Chain, Shop Floor, and Analytics. Contact Kent Lamb, [kent@titanconsulting.net](mailto:kent@titanconsulting.net), 214.632.5621; or contact your Titan Consulting Director. You can see additional information on our Advisory Services page at [www.titanconsulting.net](http://www.titanconsulting.net).