machinemetrics

ELIMINATING FRICTION

Eliminating Friction from Industrial Internet of Things (IIoT) Initiatives

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Executive Summary

"TIME IS MONEY"
—BENJAMIN FRANKLIN

Time is money! And the time it takes to make money becomes a cost and a liability. Friction is defined as the force resisting the relative motion of two bodies in contact.

In the context of Industrial IoT (IIoT) initiatives, friction consists of forces restricting the timely achievement of value for continuous improvement programs related to manufacturing plant assets. According to a recently published study by Cisco, 76% of IIoT initiatives end in failure.

At MachineMetrics, we believe the causes of failure include the following:

- Friction introduced through processes, technologies, and products used **to enable and sustain IIoT initiatives**;
- Inability to **reduce friction** in the operational processes of the manufacturer;
- Friction that **impedes innovation** and **continuous improvement.**

It is friction through the life cycle of an IIoT project and the lack of value attainment that inevitably forces manufacturers to conclude the cost exceeds the potential benefit. Speed and agility are the keys to success and should be the primary considerations when making decisions around IIoT investments. MachineMetrics' approach, enabled through our market leading IIoT platform, is designed to eliminate friction and drive immediate and continuous value creation.

This paper will examine the causes of friction and how MachineMetrics mitigates those causes and exponentially accelerates the 'time to money'.

IMPLEMENTING FRICTION

An Industrial IoT platform for discrete manufacturing must be able to connect to any machine asset regardless of brand, make, model, age, and control system. The number of different asset types, based on these variables, are in the thousands. Manufacturers require the ability to **connect instantaneously** to every asset on their plant floor. Customizing 'connectors' or building them from scratch introduces friction a manufacturer cannot afford when time to value is critical. Manufacturers also require a **common user experience** across all assets for their plant personnel. This requirement makes it difficult for machine builders and control system suppliers to provide IIoT platform technology.

A manufacturer typically has many different types of assets within a single plant. They are very reluctant to purchase a monitoring application or platform offering from a machine builder and trust that builder's monitoring solution on another machine builder's machine. MachineMetrics has connected to thousands of machine assets from a wide range of manufacturers, makes and models, going back as far as 50 years. While connecting to such a wide range of assets is challenging, the real challenge, as it pertains to friction, is the transformation, or contextualization, of data from these assets.

Data transformation is a primary source of friction because very few, if any, companies outside of MachineMetrics have figured out how to **automate data transformation** from such a wide range of assets. Today, product and technology suppliers, consultants, integrators, and manufacturers, spend inordinate amounts of time and money transforming data from machine assets to make machine data consumable. For manufacturers who attempt this in-house, this represents a misallocation of precious resources, resources who possess deep domain expertise around the manufacturer's processes and could be focused on optimizing those processes. By simplifying asset connectivity and automating data transformation, MachineMetrics enables **a friction free** implementation experience for customers and partners. Over 80% of our implementations are now enabled remotely without MachineMetrics having to physically be present in the plant. When MachineMetrics sends resources to a manufacturing customer site, it is primarily to conduct workshops to assist our customers in identifying and prioritizing continuous improvement initiatives. With the recent Coronavirus issues, friction free implementations are becoming a requirement.

Many manufacturing plants will not allow vendors to enter their facility and have also restricted the number of their own employees who can be in the plant at the same time. Even without the Covid issues, a scalable roll-out for an enterprise can't require custom integrations at every plant. Enabling frictionless connectivity and data transformation dramatically accelerates standardization efforts and speeds the ability to drive value through data captured from machine assets. Equally important in this new environment is the ability to **remotely monitor assets**. As a cloud-based SaaS offering, remote monitoring is packaged as an application in the MachineMetrics platform.

Packaging vertically focused applications provides another opportunity to reduce friction. With MachineMetrics, packaged applications are available to the manufacturer immediately with only a minor amount of configuration required. Configuration and training are also rapidly enabled remotely through on-line tools and support. Through design, development, implementation, training, and support of an IIoT initiative, the focus of MachineMetrics is on **speed, eliminating friction, and achieving value** for the manufacturer as rapidly as possible.

SUSTAINING FRICTION

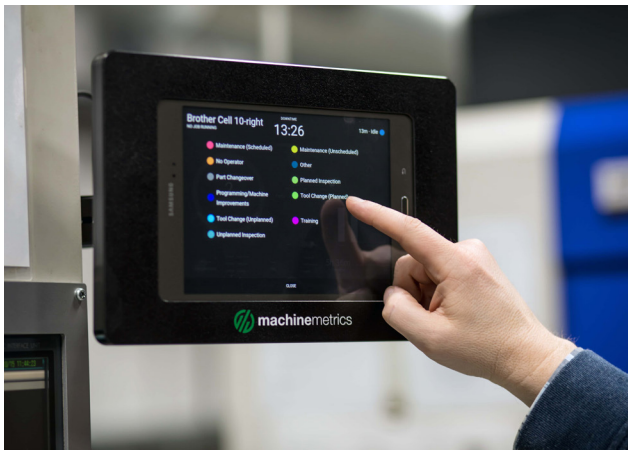
A friction free IIoT platform with packaged applications should **enable rapid time to value** with **minimal disruption** to manufacturing plant operations. Implementations should be measured in hours and payback in weeks. What is often overlooked however, is the friction around sustaining and extending these investments once implemented.

Manufacturers who choose to develop their own software to connect to assets and transform data, often require large teams to sustain the required coding effort. When the software on the asset or the control system changes, their software may have to change as well. When analytics tools change, the software may need to change.

When connecting to other data systems in the enterprise, once again, the software may have to evolve and change. For companies who do not possess connectivity and data transformation as a core competence, this is not simply a misallocation of resources, but a huge cost. With MachineMetrics, the process of sustaining and evolving our platform has been optimized and automated. It is provided as part of our SaaS service and is transparent to our customers. For manufacturers who choose a horizontal IoT platform or who attempt to pigeonhole an MES or Work Instruction platform to enable consumable data from discrete manufacturing assets, the friction and results will be similar. These tools will provide a vehicle for **'modeling' your process** and **'connectors' to access data** from the machine. However, the challenge of transforming the data to make it consumable by the various constituents and systems across your organization remains.

Once again, this can be a painstaking process that requires months, if not years, of work to develop and sustain. Fortunately, manufacturers can easily determine if claims of a friction free experience are true.

Can your vendor, or your internal organization, connect to plant assets, produce transformed consumable data, and provide applications that drive immediate value in under 24 hours? Can they do so without entering your plant? Can they enable their solution by remotely coaching your resources through a simple implementation and onboarding process? Can the application and underlying infrastructure be sustained remotely with zero involvement from the manufacturer?



Machine operators interact with MachineMetrics through a tablet PC that is assigned to and co-located with each machine in the environment.

OPERATIONAL FRICTION

One reason why manufacturers invest in IIoT platforms, and the applications they enable, is to reduce the friction on the teams **responsible for operating the plant**. Does your platform and applications achieve that objective? Does it augment and supplement existing plant personnel and their processes?

Often, IIoT solutions become an added burden on operations teams. To reduce friction, systems **need to be intuitive** and from a machine operator and supervisor's standpoint, the manual interaction with the system must be kept to a minimum. An operator has enough on their plate without having to worry about an extensive set of processes and interaction requirements with a newly introduced system.

Manufacturing facilities are constantly looking to do more with less- lights out manufacturing being the extreme example where the plant operates with no operators.

MachineMetrics is specifically designed to augment the machine operator, minimize the level of interaction required, and optimize efficiency.

Where interaction is required, such as categorization of downtime for example, MachineMetrics provides **a simple to use touchscreen** where the downtime categories are listed and the operator simply has to select the downtime cause.

The insights generated from the MachineMetrics platform enable continuous improvement initiatives. Many of these initiatives are focused on dramatically reducing operational friction. Downtime categorization, which I just mentioned, is one of many examples. By capturing and categorizing downtime, MachineMetrics customers can determine bottlenecks in their processes, take steps to reengineer those processes, and ultimately automate them to eliminate friction.

Downtime categorization has enabled MachineMetrics customers to reengineer and automate many processes, including processes for scheduling and setting up their machines.

MachineMetrics also makes **real-time data actionable**, as alerts and workflows can be created and automated to reduce friction caused by unexpected events in the production process.

INNOVATION AND EXTENDING FRICTION

An IIoT platform for discrete manufacturing must go beyond connecting assets, transforming data, and providing packaged applications to obtain immediate value. A platform must be extendable, integrating to a **wide range** of systems, software tools, and hardware (sensors for example).

The platform must also **enable innovation** through new applications that can be created by both the manufacturer and an extended partner ecosystem. Lacking these characteristics, customers limit the opportunity to continuously improve and maximize their investment over time.

Platforms that lack the technology and tools to innovate and extend, end up creating more friction and, at some point, become obsolete. More importantly, they threaten to make their customers obsolete as well. Manufacturers are just beginning to discover how their machine data can be leveraged to drive new processes.

Many of these processes cut across different departments and business segments, requiring integration not only of processes, but the systems that support them as well. An IIoT platform needs to be open and provide the tools for integration with a minimal amount of friction, enabling innovative processes and applications that leverage data across the manufacturing customer enterprise.

Today, manufacturers are discovering that consumable machine data powers analytics and analytics powers innovation. Leveraging a high frequency machine data infrastructure, predictive algorithms can rapidly be developed to address a range of opportunities including **predicting tool wear** and **failure on a machine**.

There are many technologies and tools available for analytics, and many companies with data science teams possessing deep domain expertise. Manufacturers and the companies that make up their extended partner and supplier ecosystem leverage these highly specialized tools and resources to continuously innovate and drive incremental value.

In addition to developing predictive algorithms, MachineMetrics provides the underlying high frequency data infrastructure, technology, and tools to power **data science** and **analytics initiatives**. MachineMetrics remains focused on unlocking machine asset data by continuously enhancing its IIoT machine data platform for discrete manufacturers while simultaneously enabling best of breed technologies, tools, systems, applications, and companies with deep domain expertise. Through this approach, friction is minimized and innovation and time to value across the industrial sector is accelerated and assured.

TRANSFORM INSIGHT INTO ACTION

MANUFACTURING'S INDUSTRIAL IoT PLATFORM

MachineMetrics Industrial IoT Platform transforms your shop floor data from insights into actions with powerful apps that reduce machine downtime, increase your throughput, and maximize profitability driven by your manufacturing equipment.

BOOK A DEMO

ABOUT MACHINEMETRICS

MachineMetrics is accelerating industrial digital transformation by providing an intuitive and flexible platform to easily collect and transform data from any piece of manufacturing equipment into powerful, actionable applications that reduce machine downtime, optimize capacity, and drive increased throughput and profitability for factories. Right now, hundreds of manufacturers have connected thousands of machines to MachineMetrics across global factories.

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