MonitorApp® - Digital transformation journey

powered by **aws**

Why most Industrial Internet of Things (IIoT) implementations fail and we don't

Industrial IoT Platforms

Wearables

MonitorApp® Philosophy

A manufacturer's guide

by MonitorApp®

THE IoT REVOLUTION

OVERVIEW

The industrial Internet of Things (IIoT) is the result of the union of machines, advanced analytics, cloud computing and most important people. It is a network of connected assets, and devices by communication technologies that creates systems that can extract, collect, monitor, exchange, analyze and deliver valuable insights like never before. These insights generate optimization for the customer and understanding of why they are doing what they are doing like never before. This IIoT revolution turns into readable and accessible intelligence to make data-driven decisions.

HOW SERIOUS MANUFACTURERS ARE MOVING TO IIoT?

According Digital Industrial Transformation with the Internet of Things, 2017 study:

- 72% of companies will increase their IoT spending in the next three years.
- They will increase their spending between 10% to 30%
- 60% of the companies are already involved in IoT initiatives. Half of these are early stage.
- Cost reduction is the biggest driver for moving to IoT initiatives forward - 69% of companies.
- Data security and privacy concerns top the list of challenges that are slowing IoT adoption for 70% of the companies.
- Companies cannot bear IoT fruit on their own, and will require assistance along the way. More than 50% of these companies are strongly involved with IT services companies and consulting firms.

74% OF COMPANIES THAT START THEIR DIGITIZATION JOURNEY FAIL

According to 2017 Cisco Study, 74% of companies that begin and IoT initiative fail. More often than not, projects go over budget, deployment times run log, interoperability issues occur across legacy platforms or planning and resources are not allocated appropriately, leading to their cancellation. This failure rate has lead to greater hesitation for manufacturers to embark on their digital transformation journeys.

COMMON MISTAKES OF DIGITIZATION FAILURE

TOP REASONS WE HAVE FOUND FOR THESE DIGITIZATION PROJECT'S STOP BEFORE LAUNCH:
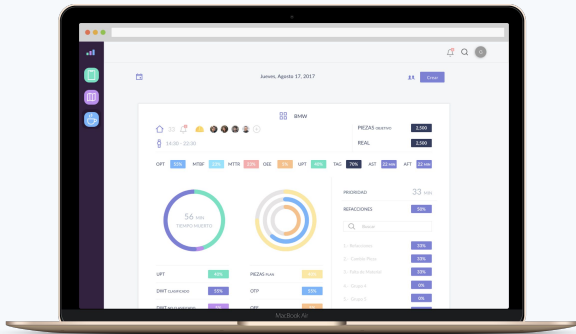
MonitorApp® principle is to improve communication between areas, this is very helpful to reduce this common mistakes.

NO CLEAR PURPOSE - Sometimes projects are driven by good marketing and shining new technology instead of business goals. The suggestion is to have very clear what is the problem that you want to solve and align the objectives and details of what you want to achieve.

NO PLAN TO SCALE - Most of the companies start their projects without an expansion plan. It is equally important to think about the complete map to see if the project is viable or not. According to Boston Consulting Group, the biggest cost of digitization is to scale a solution.

NO INTERNAL LEADERSHIP OR EXPERTISE - Having the right people on the right place is essential for a successful IoT journey, talent is often hard to find as technology is still relatively new and constantly evolving.

NO INTERNAL ALIGNMENT - IoT projects have several interdependent components, such as software, hardware devices, protocol stack implementation, gateway systems, backend systems, analytics, end user applications, User Experience, User Interface, etc. Your company needs to work in a perfect collaboration in order to succeed with all these components.

NO MANAGEMENT COMMITMENT - Any new changes are expected to create big challenges. Change is supposed to face internal and external resistance and sometimes a lot of criticism. It is important that all important stakeholders are rightly onboard and provide their complete support.

BUILDING A SUCCESSFUL ROADMAP TO IIoT JOURNEY

Having the right pieces in place, setting reasonable goals and expectations and a dedication to project initiatives may be the best approach in the end.

Here are some areas of focus for any company to consider when starting a digital transformation

ORGANIZATION - For understanding what you are solving, it is essential to first understand what are the problems that you are going to face to always go ahead and make a buy-in at all levels, from the office and on the shop floor. You need to recognize the important role of the organization and identify your organization gaps for the success of a long term project.

BUILDING A SUCCESSFUL ROADMAP TO IIoT JOURNEY
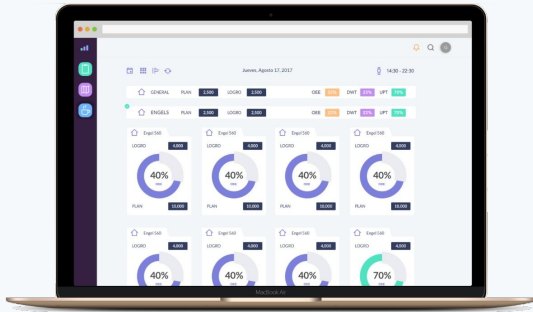
MonitorApp® aerial view provides a real-time Dashboard to monitor the floor's performance

COMMUNICATION - Avoid the mentality of "us vs them". All the information that you need is available but the hard part is actually applying it. Everyone needs to be involved and have trust in order to identify quickly as possible any problems during the implementation.

WASTE REDUCTION - The first step is to get as lean as possible with your current capabilities. Digitization solutions offer data in order to achieve the next level of lean manufacturing. So focus on these principles and use the system's data in order to improve.

TOOLS - Digital manufacturing will transform every piece in manufacturing. That is why we recommend that the tools that you are going to implement are easy to use on the market to reduce the training and implementation time and costs. Most of the actual software is not easy to use for all the organization levels and this can be translated into big chances of failure.

DIGITAL CONNECTIVITY - Networking your machines and ensuring that all production data can be captured is one of the most essential capabilities for real-time analytics. Now, the cloud can be your best friend, and with the security being better than most on-site solutions systems.

STARTING YOUR JOURNEY

According to Cisco's Scot Wlodarczak in his article entitled "Don't Let Your Industrial Internet of Things Project Fail", here are a few tips to optimize your chances of success:

1. **START SMALL** - If you focus on your entire plant, you will make success much less likely. Try starting with a smaller project in a key focus area.
2. **DEFINE SUCCESS** - Determine what you are trying to achieve and solve, then measure it before and after any IoT project.
3. **GAIN INTERNAL COMPANY IT AND OPERATIONS ALIGNMENT** - The days when operations could implement network-related projects without IT are gone, or at least close to extinction. Success is much more likely achieved by working closely together.
4. **UNDERSTAND AND ADDRESS SECURITY RISKS** - Connecting to data from the factory to the enterprise, or opening up remote access all the way down in the plant floor, can potentially open up security risks. Carefully evaluate the potential risks and impact of those risks, then focus on the most serious.
5. **FREE UP DATA FROM DISPARATE NETWORKS** - Make sure you fully understand the different networks in use all the way down to the data you want to capture for analysis.
6. **AVOID DATA OVERLOAD** - Keep your data set manageable and use basic statistical analysis to look for outlier data
7. **CULTIVATE A TECHNOLOGY-FOCUSED CULTURE AND IOT EXPERTISE** - You need new technology to achieve the promise of many IoT benefits, and you need the expertise of people, vendors and partners to get there. (Scot Wlodarczak, Cisco)
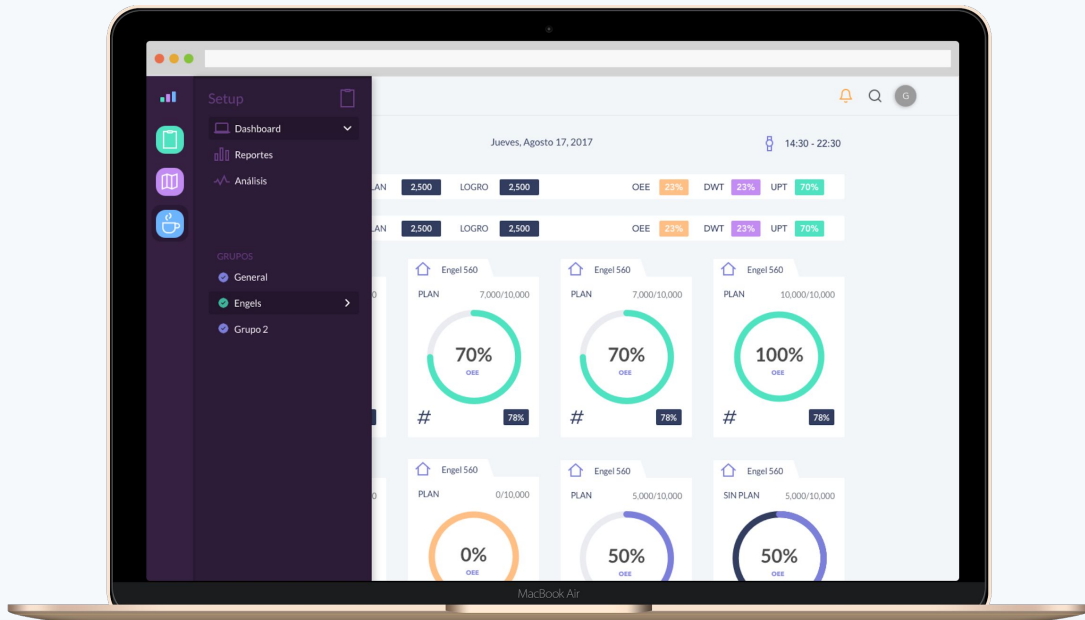
DIGITAL TRANSFORMATION DOES NOT HAPPEN FROM ONE DAY TO ANOTHER, IT IS A JOURNEY.
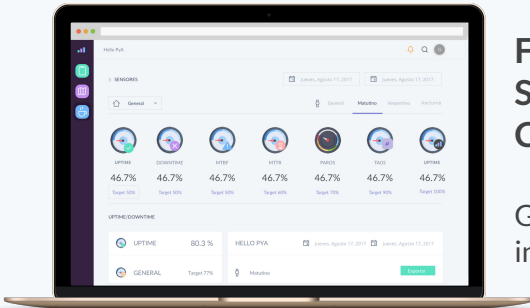
DATA EXTRACTION & STORAGE

BEFORE DIGITALIZATION

AFTER DIGITALIZATION

INDUSTRIAL IoT PLATFORMS (IIoT)

MonitorApp® trend reports view any key performance indicator across, day, week, month and shift to visualize trends and opportunities for continuous improvement.

FORBES NAMED IIoT MANUFACTURING'S MOST SIGNIFICANT DEVELOPMENT FOR THE COMING DECADE

Gartner calls it a game-changer, and others believe it will increase the value of the global economy by 10%.

Interconnectivity, data analytics and process monitoring are IoT's most important benefits. To maximize the benefits of a connected environment, a centralized platform is needed to manage the multiple IIoT devices. This is where IIoT platforms come into the picture.

In this eBook, we will provide a holistic analysis of the choices available and discuss:

- What is an IIoT platform?
- Building versus subscribing to an IIoT platform
- The difference between a cloud platform and an edge platform
- The key considerations to note when purchasing or subscribing to an IIoT platform.

At the end you will be in an excellent position to decide which IoT platform best meets your needs.

What is an IIoT platform?

At a high level, an Internet of Things (IoT) platform is the support software that connects edge hardware, access points, and data networks to other parts of the value chain (which are generally the end-user applications). IoT platforms typically handle ongoing management tasks and data visualization, which allow users to automate their environment. You can think of these platforms as the middleman between the data collected at the edge and the user-facing. These platform include four categories that include:

1. **Manufacturing Application Platforms:** Connect shop floor operators and manufacturing processes through the use of applications. They support the development and use of manufacturing applications for scheduling, inventory management, etc.

2. **Manufacturing Operations and Analytics platforms:** This type of solution provides a platform for managing manufacturing projects through the use of analytics software applications. They support both post-production and pre-production.
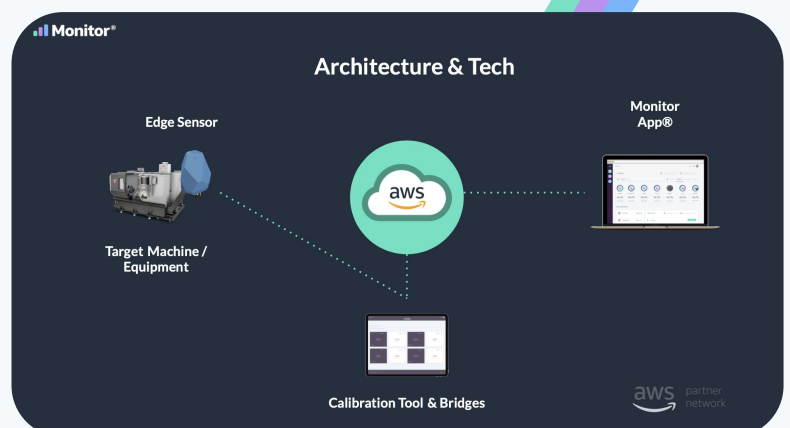
3. **Building Information Modeling or Connected Worker Platforms:** These platforms are built with the idea of connecting parties involved in a manufacturing process to enable effective collaboration. Includes product designer, material supplier, operator, etc.
4. **IoT Platforms:** Solutions provide computing support for sensors, machines, smart devices and edge devices within a facility, in order to provide stakeholders and operators with visibility into machines and operational performance.
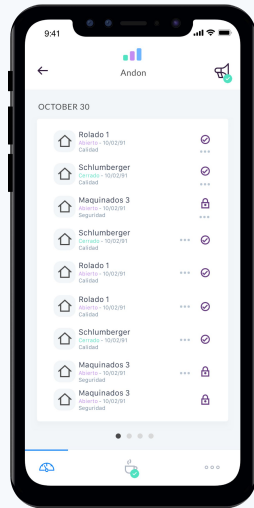
MonitorApp® mobile notification center, this interface was designed and deployed on the iOS and Android environment in order to customize alerts to get the most out of the platform.

OUR DEFINITION

A platform that extracts, process, monitor and visualize data and information of the shop floor in real time to optimize and collaborate to increase performance and productivity.

This definition highlights the fact that the impact of an **IoT platform needs to be collaborative in order to reach true intelligence,** due to the use of data and its contextualization at all levels of the organization.

BUILDING VS SUBSCRIBING TO AN IIoT PLATFORM

The first reason for IIoT implementation failures takes into consideration the challenges of building an IIoT platform from scratch. Approximately 50% of the IIoT fail for the following reasons:

- **Technical limitations:** Building and IoT platform requires technical expertise which most manufacturers do not have. Most of the manufacturing IoT projects do not scale out of the purgatory stage and end up becoming uncompleted projects.
- **Time and resources:** Building an IIoT platform from scratch means diverting human and capital resources to a time-intensive venture. It takes approximately 30 months to build a functional IIoT platform. This can leave the core business of manufacturing neglected.
- **Competitive pressure:** 75% of industrial enterprise intend to integrate the use of IIoT in 2020. If first mover advantage is applied, this means that competing firms will have 30-month ahead-start against anyone who intends to build an IoT platform from scratches

The cons shown before and challenges with implementation, makes leaving IIoT platform building and implementation to the experts the more viable option.

CLOUD PLATFORM VS WEARABLES PLATFORM

Manufacturing equipment and the IIoT devices used across the facility produce large data sets that require scalable computing resources to proeess. The cloud provides a centralized platform, but when applied to processing machine and IoT data it has its limitations.
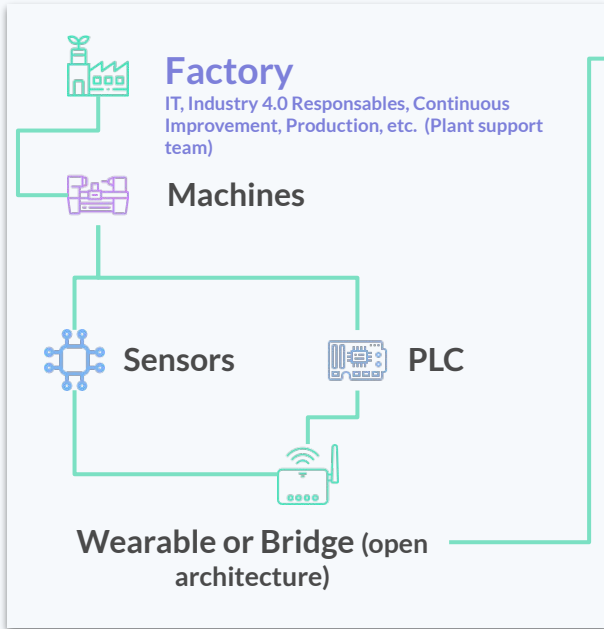
The limitations are latency and bandwidth issues that come with transferring large data sets.

The use of a real-time scenario explains better this constraints. Imagine a facility with 20 functional edge devices tracking machine productivity and health across your facility. In this scenario, the edge devices will send large data sets to the cloud for analysis.
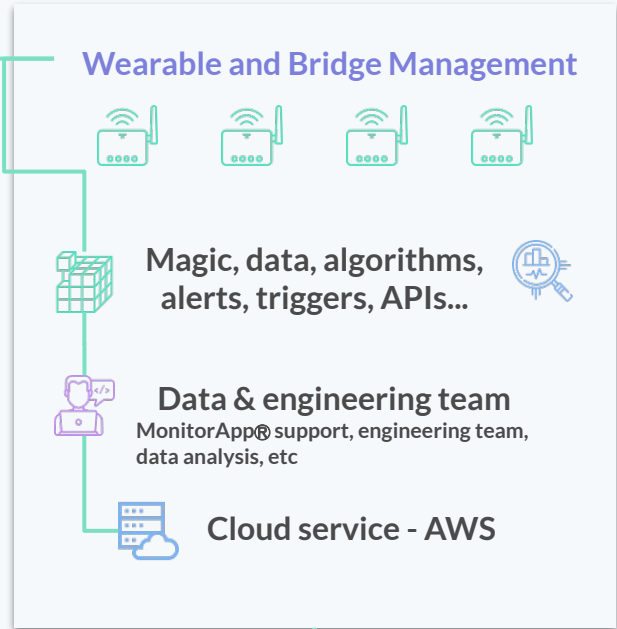
Wearables platforms (that use bridges) reduce the connectivity issues by bringing data processing closer to the edge device and process all the data through MQTT protocols or an IoT gateway to the edge device in real time.

WEARABLE PLATFORM

MONITORAPP® IoT PLATFORM

Factory
IT, Industry 4.0 Responsables, Continuous Improvement, Production, etc. (Plant support team)

Machines

Sensors   **PLC**

Wearable or Bridge (open architecture)

Wearable and Bridge Management

Magic, data, algorithms, alerts, triggers, APIs...

Data & engineering team
MonitorApp® support, engineering team, data analysis, etc

Cloud service - AWS

APPLICATIONS

USERS:
Workers, management, executives

APPLICATIONS:
Collaboration, dashboards, condition monitoring, preventive maintenance, OEE monitoring

USE CASES:
Collaboration, dashboards, condition monitoring, preventive maintenance, OEE monitoring

INTEGRATIONS

It is also important to note that edge platforms also leverage the cloud for scalability and extensibility. In situations where we need big data form multiple devices, the cloud can handle the processing task and its results are made available through an edge platform.

MONITORAPP® PHILOSOPHY
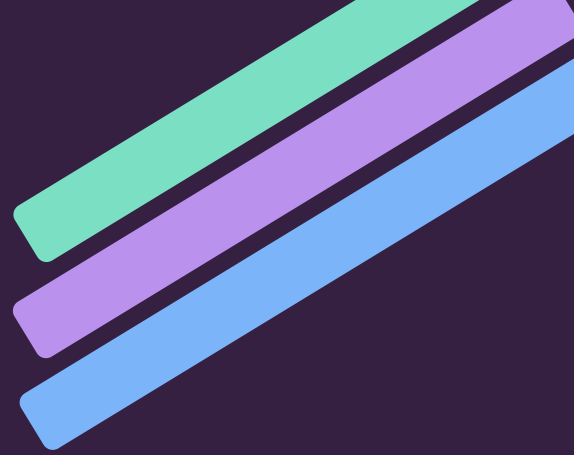
We have simplified digital manufacturing. Our solution is always thought for the long term in order to have the simplest and the most useful solution in the market.

That's why we defined 5 pillars as the basis of our culture and philosophy in order to keep developing MonitorApp® platform and give the best results to our clients.

We believe that manufacturing companies need to empower the benefits of IoT by them self, using technologies that do not invade their work and machines. This is key for the success of the implementation and scalability.

NON INVASIVE PHILOSOPHY

The future of the IoT and software is the capability to integrate with third party solutions, in order to give to the client the opportunity to choice. That's why since the beginning we integrate the mayor number of different sensors and protocols.

OPEN ARCHITECTURE

We don't develop features, we develop experience. We have periodic and open communication with all our customers to really understand where they need help and solve their problems with simple but powerful solutions

CLIENTS CENTERED APPROACH

The biggest challenge on digital transformation is the culture, to have the easiest software to use is synonym of high usage and adaptability. All our modules are designed to be learned in a maximum of 1 hour training.

USER FRIENDLY

No upfront millionaire investments required to start, Digitize your floor operation by paying a fixed monthly fee and an accessible initial investment in hardware

INCLUSIVE AND ACCESSIBLE

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