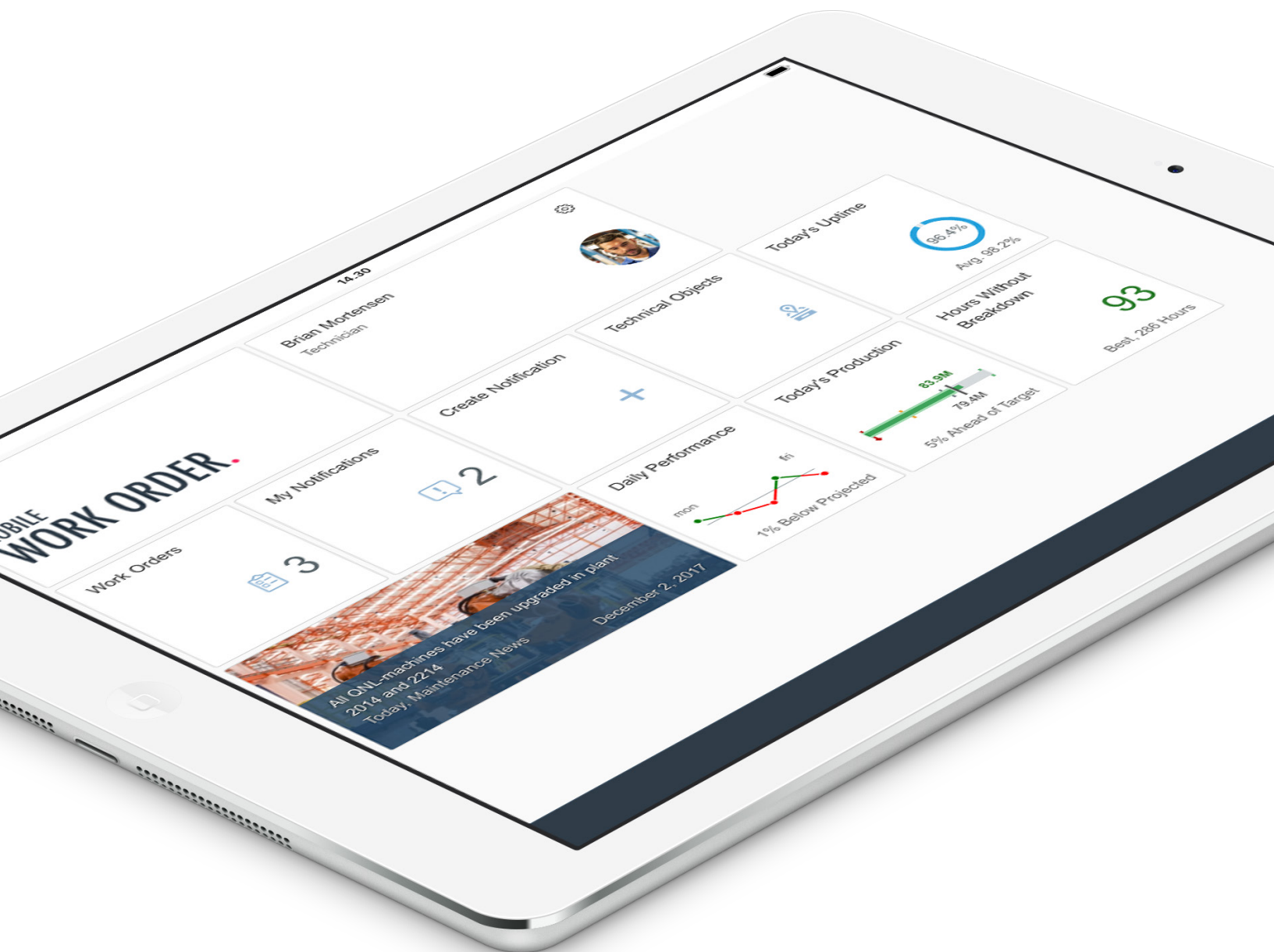


IoT & 2BM MOBILE WORK ORDER.



INDUSTRY 4.0.

SIGNIFICANTLY IMPROVE YOUR BUSINESS CASE WITH IoT



Every asset-intensive organisation that uses assets to produce or manufacture goods has a maintenance department whose sole job is to make sure the assets keep performing op-

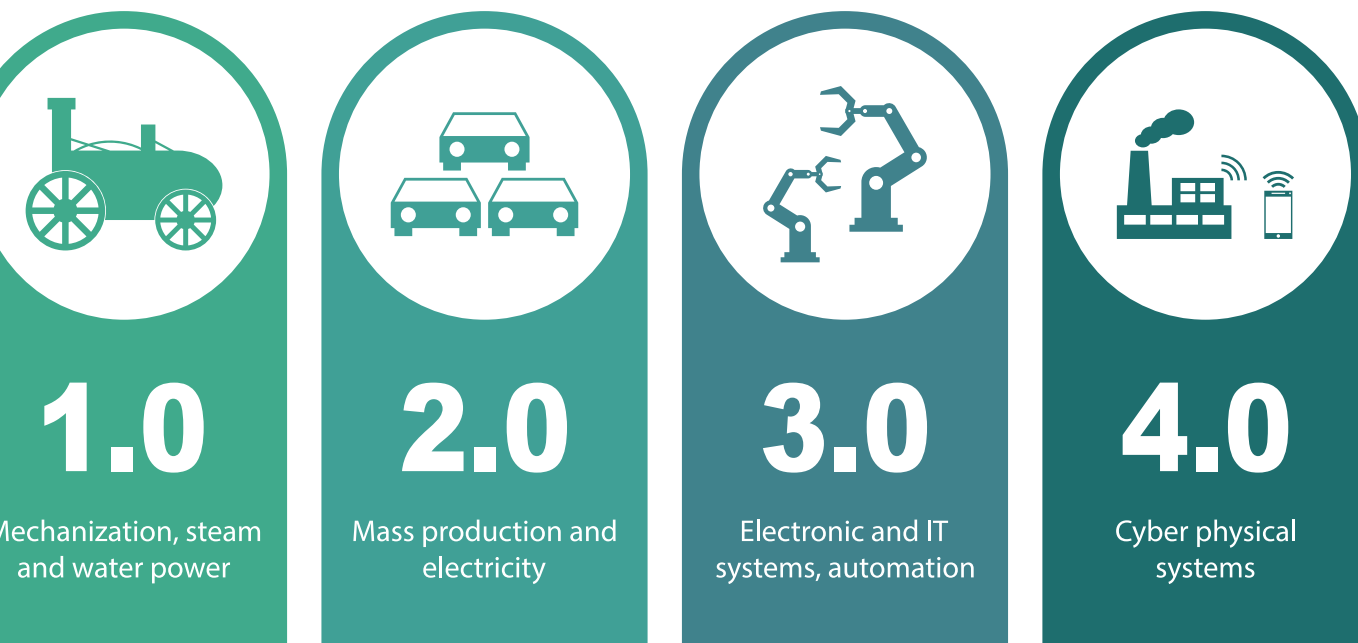
timally.

If an asset breaks down or becomes less productive, it has devastating effects on the production.

THE ANSWER.

To advance to this level of efficiency asset-intensive organizations need to keep up with a changing competitive landscape in asset management and production. They face the dual challenges of cost effectiveness, and a demand for exponential growth in efficiency – how will they confront the challenges of stepping into industry 4.0?

The answer lies in taking the first step towards true Predictive Maintenance and industry 4.0 with 2BM's IoT module and sensors that collect data on the actual condition of your machinery. Analysing this massive collection of data with Machine Learning and Artificial Intelligence will augment your maintenance activities. With 2BM's IoT module you know the exact condition of your equipment and production lines on every metric that matter.



“Measurement is the first step that leads to control and eventually to improvement. If you can’t measure something, you can’t understand it. If you can’t understand it, you can’t control it. If you can’t control it, you can’t improve it.”
- H. James Harrington

CUSTOMIZE AND CONNECT.

2BM Mobile Work Order is automatically synchronized with Blackbird via the SAP Cloud, our online production universe, where you can see your progress and KPIs’. Log in to 2BM Mobile Work Order via your desktop computer, or download the 2BM Mobile Work Order app for any smartphone or tablet.

You can also customize the solution with your own data fields and sensors such as existing SCADA data, all available and easy to set-up with SAP Cloud platform integration.

With 2BM’s IoT module every machine equipped with a sensor will talk to you, giving you information about its condition. Like a doctor trying to diagnose a patient, sensor-based condition monitoring will provide you with the necessary data to perform machine and equipment diagnostics; and Predictive Analytics will tell you if something is going to fail in the future, and when it will happen. Data measurement is the first step towards Predictive Maintenance. Collecting, consolidating and analysing data, and turning it into actionable information lies at the heart of true Predictive Maintenance.

THE WHY.

Asset-intensive organisations lose millions everyday due to breakdown, line stops, and inefficient utilization of assets.

Many organizations today employ planned maintenance, relying on scheduled replacements of equipment, machinery, and components.

This is furthermore combined with a reactive approach to asset management, wherein asset integrity levels are not monitored, resulting in repair work performed after the machinery has broken down.

This is prevented by an IoT solution that moves your asset management from reactive or planned to predictive maintenance, and allows you to reap the benefits of sensor-based condition monitoring. 2BM Mobile Work Order with its sensor-based IoT module represents such a solution.

Why fix an asset based on a planned schedule, by replacing a component or module, if the asset can still perform optimally for some additional time? You will lose valuable utilization of an asset if you replace it prematurely.

CONDITION MONITORING WITH 2BM IOT.

If you know the exact condition of an asset and you know based on predictive analytics when and how much its condition will deteriorate – you can get to the asset ahead of time and make improvements/adjustments and prolong its life – the minor adjustment will cost you a fraction of the money it would cost to replace the whole asset once it has broken down.

If you successfully maintain your asset continuously and consistently based on predictive analytics, your asset might not ever break down! Make a comparison – cost of replacing assets/planned component replacement versus the cost of minor adjustment as and when predictive analytics recommends it;

- You will end up dramatically increasing the lifecycle of your assets
- Better assets result in better and higher throughput, less production stops, improved production metrics like units produced per minute, line operating rate, value adding time, etc.

Fixing assets only when they indicate that something is wrong with them promises cost-savings because it eliminates waste, and is a more efficient utilization of resources leading to a much more sustainable future.



THE HOW.

2BM Mobile Work Order supports your technicians to get it right the first time. At 2BM, we have taken it one step further by integrating advanced state of the art IoT functionality, for organizations to prevent failures, before they happen.

Using 2BM Mobile Work Order's IoT module your SAP system receives enhanced notifications directly. Your back-office maintenance planners evaluate the notification and create new work orders on the strength of the IoT enhanced notifications. 2BM's sensor technology will present KPIs' (Key Performance Indicators) down to the machine level as a digital twin.

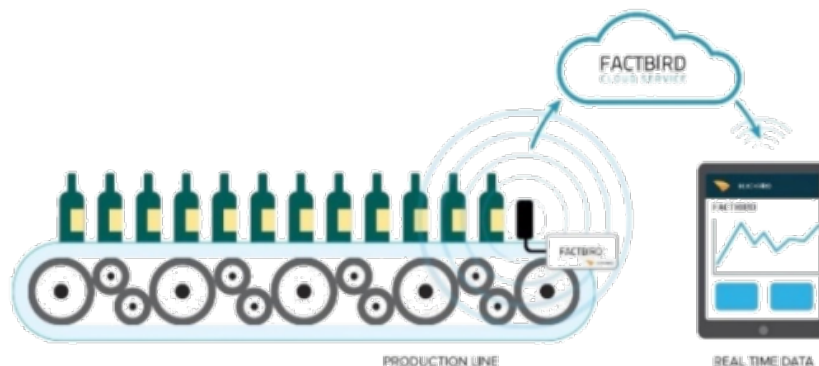
In addition – sensors are used to measure environmental impact on bearings and valves inside your machinery, as well as give you updated machine master data including equipment usage, measurement points, and counters.

JUST HOW EFFECTIVE ARE YOUR PRODUCTION LINES AND FACTORIES?

2BM Mobile Work Order with the IoT Module from Blackbird will help you monitor your production lines and the condition of your production equipment enabling you to optimize efficiency and production throughput.

Blackbird is a new performance monitoring tool that automatically evaluates your recent production history and performance indicators, giving you information about whether you're performing optimally, or whether you have a stop and unexpected downtime in your production.

Through 2BM Mobile Work Order it also gives you access to real-time data on the current condition of your production equipment and alerts you if maintenance is needed to keep production going

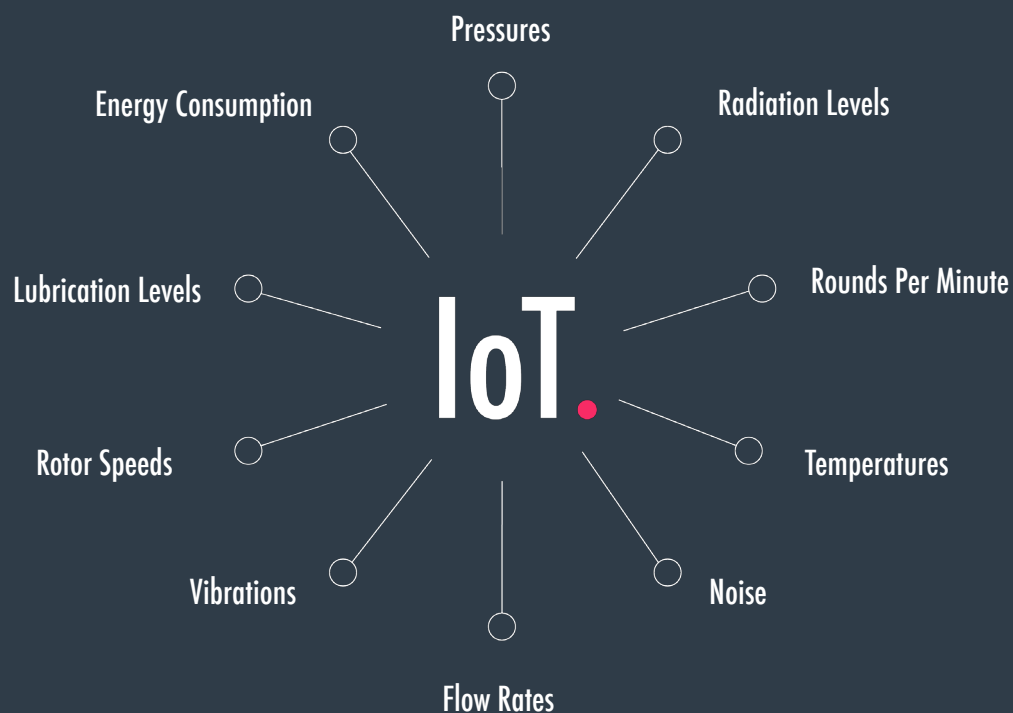




2BM's IoT Module uses a proprietary industrial-grade sensor technology that is easily installed in your machinery and equipment, including your production line.

The sensor data is relayed to a Cloud Server through SAP, which contains sophisticated machine learning algorithms that turn the data into actionable insights – for example KPIs' and dashboard visuals (graphs, charts).

The new on-line and automated monitoring and information processing provides insight into important everyday dimensions that tells you how your service and maintenance improves your ability to increase your production limits. You can monitor your total output just as you see your production figures of the last seven days and compare it with your optimal performance level and your recent production history.



ANALYSE YOUR PRODUCTION TECHNIQUES - AND IMPROVE!

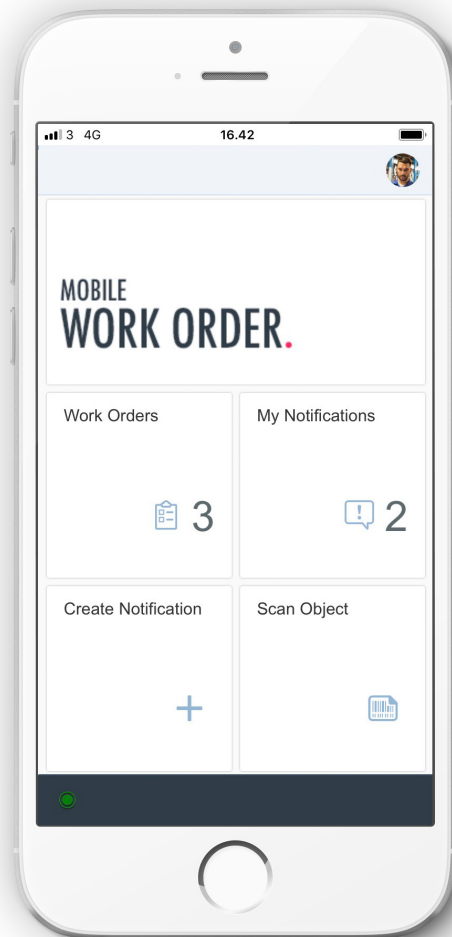
We are making it easier to get the data you need to improve your production output and quality. Let 2BM Mobile Work Order measure crucial production and service metrics that you can use to analyse your performance.

Blackbird creates real-time throughput information; production speed, stop time, stop reasons, video analysis etc. are all crucial to understanding your production so you can continuously perform at peak levels.

INCREASE YOUR PRODUCTIVITY.

Information from sensors is available as soon as you install the Blackbird devices, which are easily deployed in your production. Simply scan equipment with your mobile device and get an overview of maintenance history, measurement points and more.

Achieve your highest performance and set new goals;
With 2BM Mobile Work Order, SAP Cloud and Blackbird, you get superior tracking in demanding environments than you get from your old systems. A built-in barometer, hydrometer, accelerometer and temperature sensor also provide environmental data in real time.



What activities and thresholds can the solution track? More than you can imagine! Production measurements and disciplines are only the beginning as there is also built-in support for Field Service Management, Facility Management, analytics, predictive maintenance and machine learning.

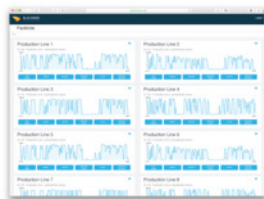
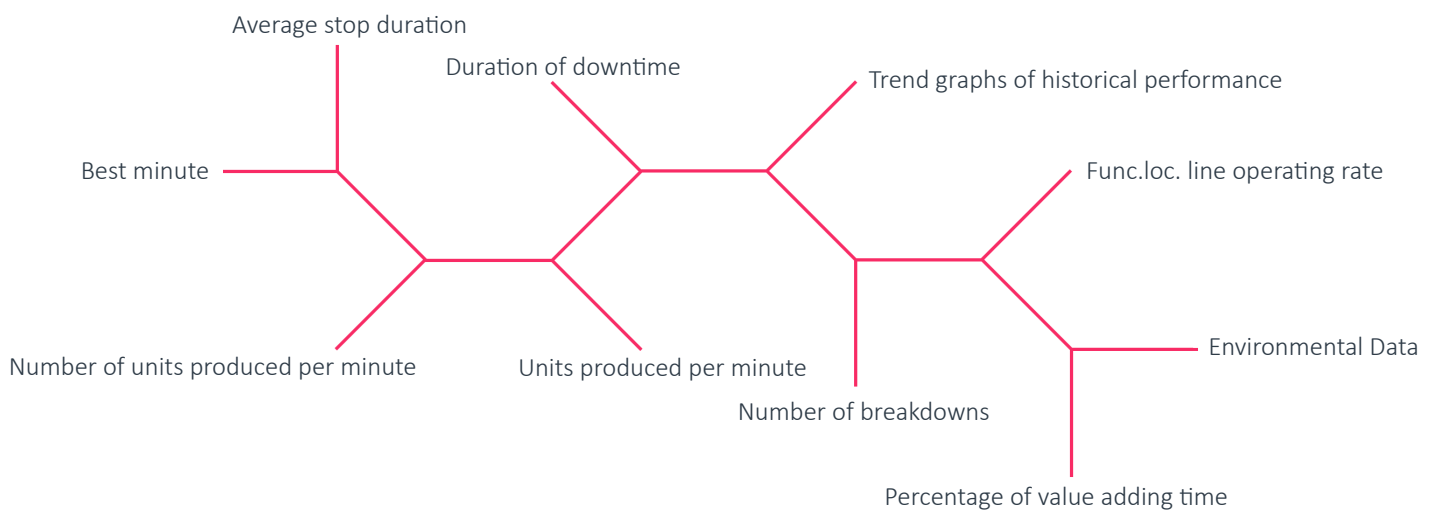
2BM MOBILE WORK ORDER'S IOT MODULE.

2BM's IoT functionality comes with Virtual Inspections using video-feeds. The technicians will use the time-stamp of machine breakdown and scroll to that exact time in the video recording to see what actually happened at the time of failure.

according to severity and criticality. The alerts are created when KPI thresholds are breached. These thresholds are based on machine and equipment conditions, or the production line.

Furthermore, 2BM Mobile Work Order's IoT module includes alerts, thermal conditions and weather circumstances, categorized

Finally, the IoT module contains KPIs using data visualization through graphs and charts including:



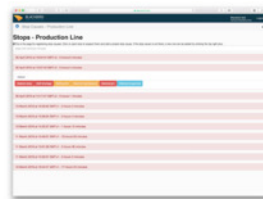
Dashboard Screen

The dashboard is the first screen you encounter after logging in. It enables you to preview all your Factbird at one glance.



Production Screen

Check how well your production line has been running within a certain period of time. You also have access to a set of statistics and information incl. longest period of non-stop operation, the number and average length of stops, daily/weekly production and much more.



Stop Causes Screen

Link stop causes to actual stops.



Stop Analyses Screen

Once a Stop Cause has been linked, review them on a chart, and see what is causing downtime and improve your future production by using the knowledge.

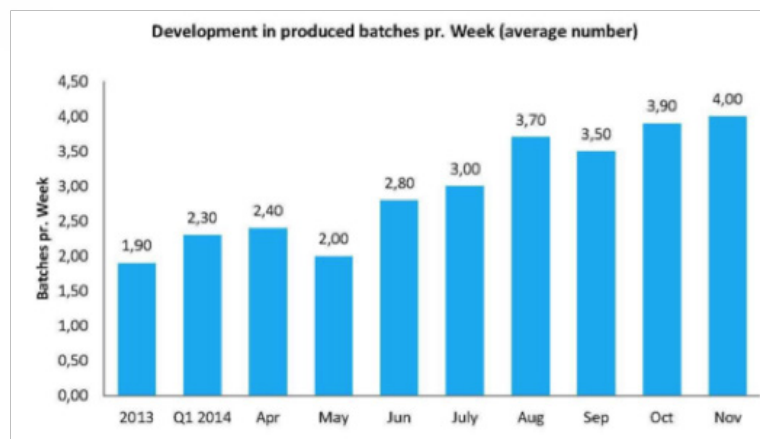
MAKE EVERY DAY A COMPETITION - BENCHMARK YOUR PERFORMANCE.

With 2BM Mobile Work Order, you get live feedback on your production activities and performance.

You also get information about batch start and end, duration of maintenance and service tasks, and you can view rankings of production sites and see how your current performance is ranked in relation to your personal record and factory record.

Compare your production facility with your colleagues and other production sites - who has the most efficient production with the least downtime?

Gamification and improvement in relation to your production, both locally and across a global production setup, is standard in 2BM Mobile Work Order when you connect a Blackbird IoT module.



WHAT YOU WILL ACHIEVE WITH 2BM MOBILE WORK ORDER IOT.

2BM Mobile Work Order's IoT functionalities allow you to improve response time to failures, as well as enhance documentation of technicians' response times through accurate time registration. By augmenting SAP PM functionality, 2BM Mobile Work Order improves maintenance planning with insights from IoT sensor data. 2BM Mobile Work Order's IoT module provides the following competitive advantages:

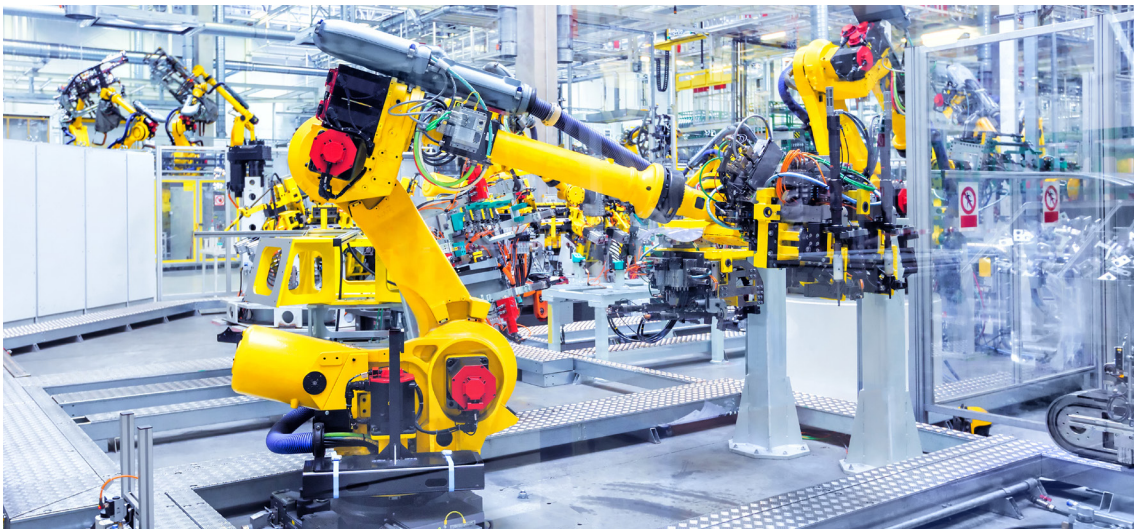
- Activate safety protocols for technician based on asset condition including protective gear and which safety checklist to follow.
- Decrease investigation time into malfunction as technicians will know which component to replace, and has the necessary documentation.
- Using KPIs, video feeds and alerts, maintenance planner will target which sensors and data to analyze.
- Benchmark response quality and speed for failure correction.

In addition, machine learning algorithms does the investigative work for you, analyzes the data, looks for patterns and creates new notifications that are directly relayed to your SAP PM system. The result is brand new artificial intelligence-based work orders.

MONITOR YOUR PERFORMANCE, PRODUCTION AND PLANT MAINTENANCE.

Join Industry 4.0 without reinvesting in new production lines. The current revolution with automation, data exchange and insight into production technologies creates more efficient and productive factories.

The core of industry 4.0 is real-time information about your production and maintenance situation - to provide new knowledge and insight – that enables you to become more efficient and competitive. And that's exactly what 2BM Mobile Work Order with Blackbird module does!



TO SUM UP.

2BM Mobile Work Order with the IoT module offers unprecedented opportunities to explore industry 4.0 and explosive revenue growth with a tool that advances optimal utilization of your assets. By preventing downtime, and performing repairs timely through sensor guided insights, you will efficiently utilize your workforce talent and take your first step towards the future of asset management; True Predictive Maintenance.

ABOUT 2BM.

2BM is a leading SAP consulting and software development company that brings tomorrow's technology into today's business practices. In 2000, the company was founded with the purpose to support forward- thinking and quality-conscious companies and organizations, primarily with mobile Enterprise solutions. Since then, the company has grown from being one of Denmark's and the Nordic region's leading specialist companies to being a strategic full service provider, delivering optimized business value across technologies, platforms, and products.

2BM is a member of the United VARs network – the largest global alliance of SAP channel partners. The network covers more than 80 countries and gives our clients access to more than 7,500 highly qualified and experienced SAP consultants.

Find the Mobile Work Order app in your app store
and experience the future of maintenance yourself



Apple TestFlight



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