

BellaDati Agile BI

Analytics for Predictive Maintenance

Internet of Things



Challenges of manufacturing

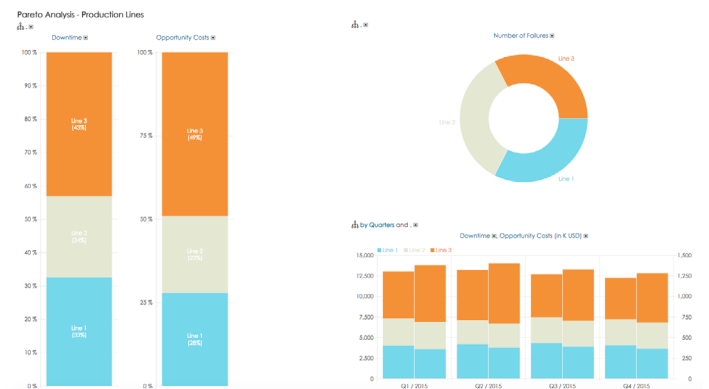
Maintenance as new revenue stream

As a manufacturer, you're charged with retaining customers, improving profit margins and growing revenue. Traditionally, you've relied upon attracting new customers, selling more products and adopting lean practices to meet these objectives. However, as the sophistication of equipment increases and ability to monitor equipment improves, you now have an opportunity to capitalize on a new revenue stream: maintenance services.

To decrease opportunity costs via predictive maintenance of own production line

The manufacturing efficiency of you as the manufacturer is critical, competing on operational excellence is central to your overall strategy. The most significant component of your (the manufacturer's) value chain, a mounting machine production facility, is suffering from high preventative maintenance costs, any machine outage incurs significant associated opportunity costs.

2. Analysis of Downtime and Opportunity Costs



Use BellaDati Agile BI to decrease opportunity costs via predictive maintenance of own production line

Maintenance services have always been important. But as equipment becomes more complex and automated, the resources and skills required to maintain equipment become scarce and expensive. Equipment owners, or lessees, are seeking alternatives to manage and maintain their precious assets. Preventative (as opposed to predictive) maintenance pre-plans a maintenance schedule to ensure high uptime and optimized use of service technicians. Preventative maintenance can be expensive and run the risk of machine failure, urgent remediation activities and unplanned downtime. From the servicer's perspective, this carries the threat of Service Level Agreement (SLA) penalties, reputational damage and loss of business.

The right set of predictive maintenance capabilities can assure you deploy only maintenance teams and equipment parts when maintenance is really needed, thereby ensuring uptime and product quality at reduced cost. That's where BellaDati Agile Analytics will help you.

Sensors - Temperature and Power Usage

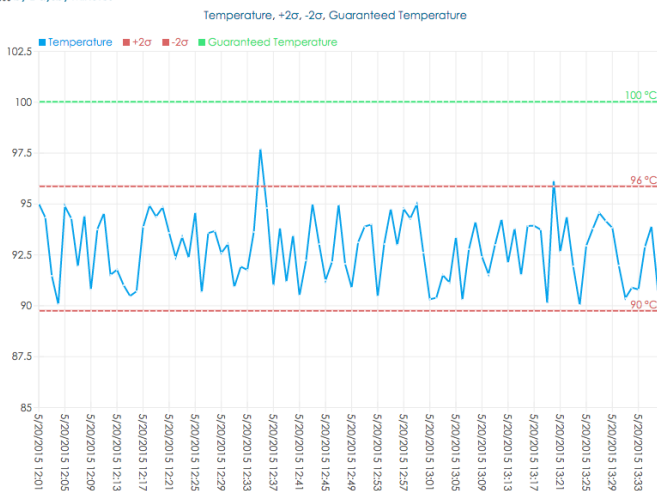
Record ID	Date	Time	Temperature	Electric Power Usage
1	05.20.2015	12:01:00	95	2.99
2	05.20.2015	12:02:00	94.32	2.98
3	05.20.2015	12:03:00	91.45	2.76
4	05.20.2015	12:04:00	90.04	2.78
5	05.20.2015	12:05:00	94.87	3.92
6	05.20.2015	12:06:00	94.26	3.76
7	05.20.2015	12:07:00	91.91	2.76
8	05.20.2015	12:08:00	94.42	2.78
9	05.20.2015	12:09:00	90.76	3.99
10	05.20.2015	12:10:00	93.75	3
11	05.20.2015	12:11:00	94.52	2.77
12	05.20.2015	12:12:00	91.5	2.81
13	05.20.2015	12:13:00	91.75	3.94
14	05.20.2015	12:14:00	91	2.77
15	05.20.2015	12:15:00	90.46	2.91
16	05.20.2015	12:16:00	90.69	3.98
17	05.20.2015	12:17:00	93.84	2.99
18	05.20.2015	12:18:00	94.9	2.92
19	05.20.2015	12:19:00	94.36	3.94
20	05.20.2015	12:20:00	94.81	2.95
21	05.20.2015	12:21:00	93.57	3
22	05.20.2015	12:22:00	92.36	2.98
23	05.20.2015	12:23:00	93.35	2.94
24	05.20.2015	12:24:00	92.34	3.92
25	05.20.2015	12:25:00	94.57	2.79
26	05.20.2015	12:26:00	90.69	2.97
27	05.20.2015	12:27:00	93.65	3.95
28	05.20.2015	12:28:00	93.65	2.82
29	05.20.2015	12:29:00	92.57	2.89
30	05.20.2015	12:30:00	98	2.87
31	05.20.2015	12:31:00	90.9	2.85
32	05.20.2015	12:32:00	91.9	2.8

5. Sensors Monitoring

More...

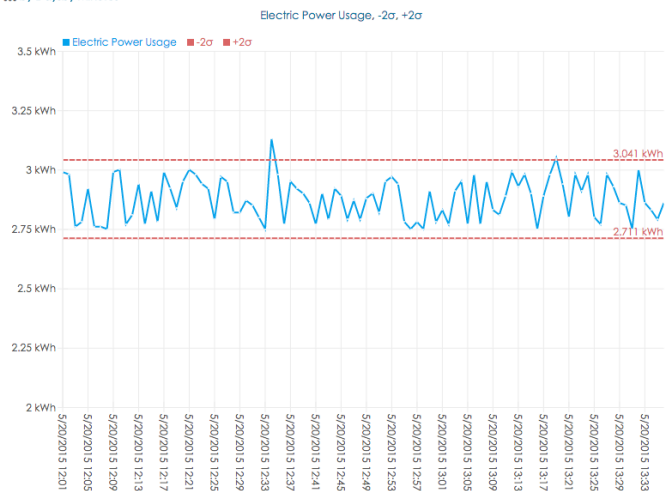
Temperature

by Daysby Minutes



Power Usage

by Daysby Minutes



BellaDati Agile Analytics solution for Predictive Maintenance

BellaDati brings together the Internet of Things (IoT) and agile analytics into an integrated BellaDati Agile Analytics predictive maintenance solution for manufacturers.

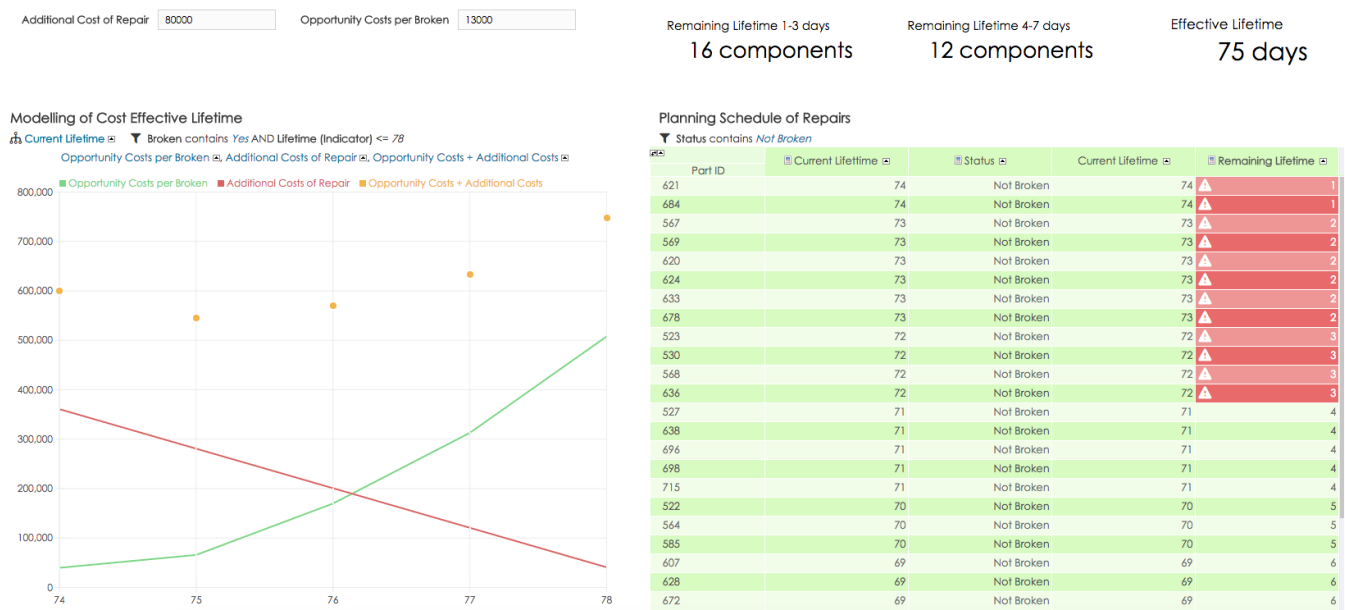
By tapping into the power of the Internet of Things BellaDati helps to manufacturers access usage and status data directly from sensors and actuators embedded in equipment or data from other systems and combine them in BellaDati database.

BellaDati agile analytics continuously analyze this data

- to identify root causes and associated probability of failure
- predict maximum time that machine components can operate before failure within quantified confidence levels
- Monitor sensor data to determine equipment condition
- design an intelligent maintenance schedule to focus on critical tasks to provide real-time alerting

8. Modelling of Cost Effective Lifetime and Planning of Repairs

More...



BellaDati Agile Analytics analyze real time data enrich, it with historical intelligence to predict equipment failures and drive maintenance services when they're needed. BellaDati goes beyond analytics on inbound data streams to take automated intelligent action, such as kicking off a business process to dispatch a part or scheduling a technician. And by combining the data from Internet of Things, GPS sensors and other systems, the solution enables you to monitor and understand field service technicians' tasks and performance in real-time to balance your ability to combine a static route with dynamic scheduling opportunities. The end result: reduced technician costs and improved service levels enabling you to deliver more competitive service contracts at lower costs and higher profit.

BellaDati Agile Analytics solution for Predictive Maintenance

Benefits

- Achieved reduction in preventative maintenance shifts
- Revenue increase potential
- The decrease in unplanned machine outage
- More stringent SLAs and customized maintenance services than competitors
- Improved operating margins due to decreased technician and maintenance costs
- Increased real-time visibility into field service technician tasks and performance
- Improved remedial planning when maintenance requests cannot be completed during planned downtime periods
- Insights into preventative measures—for example, using predictive maintenance as the basis for continuous improvement in preventative maintenance.

Create alert

Temperature Monitoring

Alert helps you to monitor changes in the data warehouse. You do not have to check manually for changes and search alert values manually after setting up the alert. If selected indicator's value is in the range specified by the conditions below, an alert is launched.

Date settings

Date attribute Without date interval

Alert conditions

Show help

Notify me when

Temperature Maximum Condition greater than Value 95

Send me an e-mail on alert.

Check on data change

back Create

BellaDati

Alarm Maximum Temperature has been activated.

Activation reason: Indicator value "Temperature (Maximum)" 97.71 is greater than or equal to 95.0

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The manufacturing information system can work as follows:

Manufacturing data can be collected via proprietary manufacturing information systems or via standard Manufacturing System software packages, stored in database and BellaDati access data via selected connector to perform analysis in real time or historically. Belladati has also its own database. The real case customer (Bosch) has for example in-house developed manufacturing information system using MSSQL database, that is mirrored and BellaDati provides real time analysis accessing data via SharePoint connector.

Available resources:

- [Predictive maintenance demo - YouTube](#)
- [Predictive maintenance demo - Youku](#)
- [Demo reports \(public\)](#)
- [Demo Reports - BellaApp Download \(Partner portal\)](#)
- [Demo Script \(Partner portal\)](#)

If you don't have access to BellaDati partner portal, contact us at sales@belladati.com.

BellaDati is Agile BI, Pure Web Application, Complete BI Solution for Manufacturing



Cloud or On-Premise

Deploy in the cloud or install On-Premise. All you need is web-browser or mobile device.

Analytics Platform

with API and SDK for creating Embedded Data Solutions. Deliver BellaDati as Your Brand.

Mobile BI

Pull reports out of your pocket on- or off-line with BellaDati Mobile for iOS and Android. Filter, share and comment or harvest new data on the go.

Predefined BellaApps

Take the fastest paths. Leverage pre-built dashboards, reports and measures to cut down costs and time.

BIG Data and Predictions

In Memory Real time Statistics and Prediction with SAP HANA.

NO-SQL/SQL biz data integration and analysis

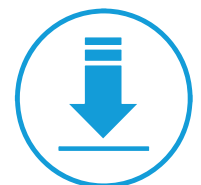
from more than 100 databases, APIs, Cloud Solutions and Social Networks.

Social network for Data Discovery

Realtime collaboration on the insights. Search, share, copy, export, get notified on data changes.



BellaDati Cloud



BellaDati On-Premise



Ask for more use cases...

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