PEAK42

Technology Update (Brief)

Manufacturing Analytics
“Self-Service modern manufacturing analytics solution”

Why is this of interest?

With the excellent work that Continuous Improvement teams are doing, it is becoming harder to uncover operational saving opportunities in a Water Treatment Plant or a Food factory. Did you know about the advances in the area of Manufacturing Analytics and the benefits these could bring?

Introduction

As a technology company we get bombarded with new industrial software products and have become somewhat cynical about innovation for the sake of innovation. Occasionally something resonates where we instantly recognise that our customers will get value.

Modern Manufacturing Analytic solutions fall into this category and allow our customers to uncover trends and saving opportunities buried in millions of data historian entries.

The need to produce this data is evident and most our customers are dedicating one or two individuals to manually process data and produce reports. A costly exercise, reliance on individuals, “multiple versions of the truth”.

“Despite major concerns over the continuing volatility, opportunities exist for businesses that are prepared to invest in developing and rebalancing their export portfolios while continuing to focus on operational efficiency and investing in their analytics capabilities.” Deloitte

Manufacturing Analytics

Business Analytic has been used for many years in the corporate world. Applying correlation techniques to thousands of transactions per day. Why aren’t we using those techniques for our manufacturing data?

- Well, to begin with, most of our data is not transactional, but time based.
- Secondly, we don’t generate thousands but millions of entries per day.

The software technologies designed for business analytics just didn’t work in our industrial world.

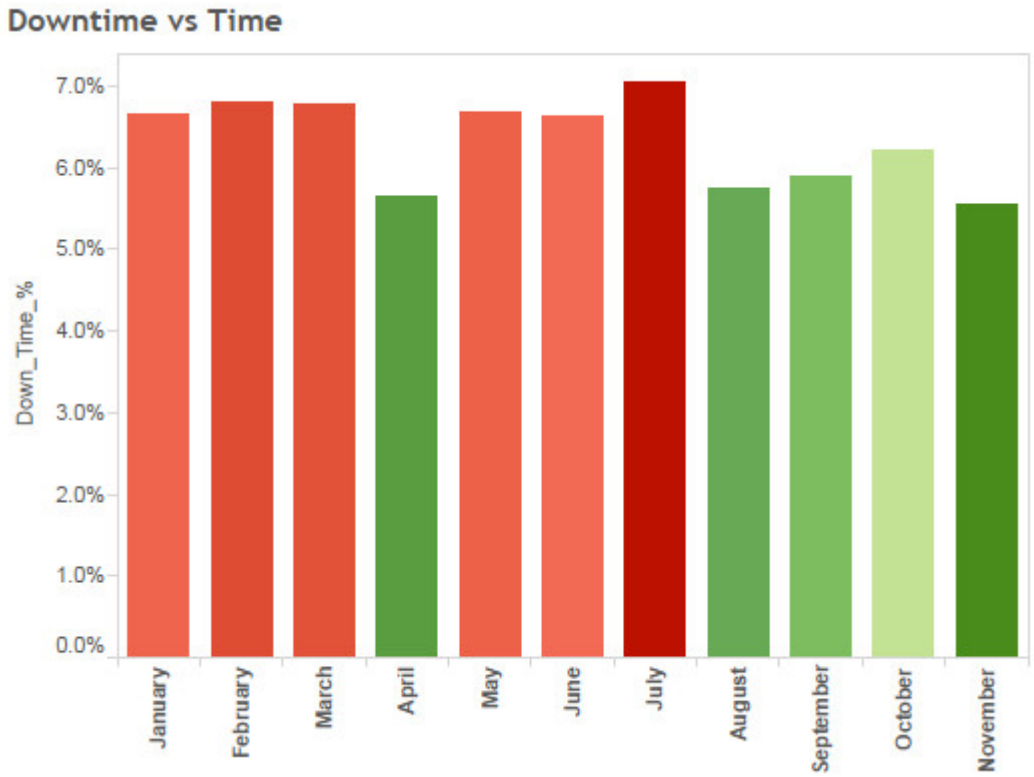
Things have changed and thanks to advances in software technology, using time slicing, summarisation, connectors to business systems, we can now build custom plant data warehouse with a best of bread business analytics front end.

Why is this useful to uncover improvement opportunities in my plant?
mainly to bring context to our KPIs.

Systems Integration

KPIs without contextual information are of limited value

You may be able to trend your site KPI's versus time.



Some good months, some bad months, not particularly conclusive in isolation…

Let's bring some context from outside the manufacturing historian. Drag and drop the Production Schedule and look at the same information in the context of the product being manufactured.

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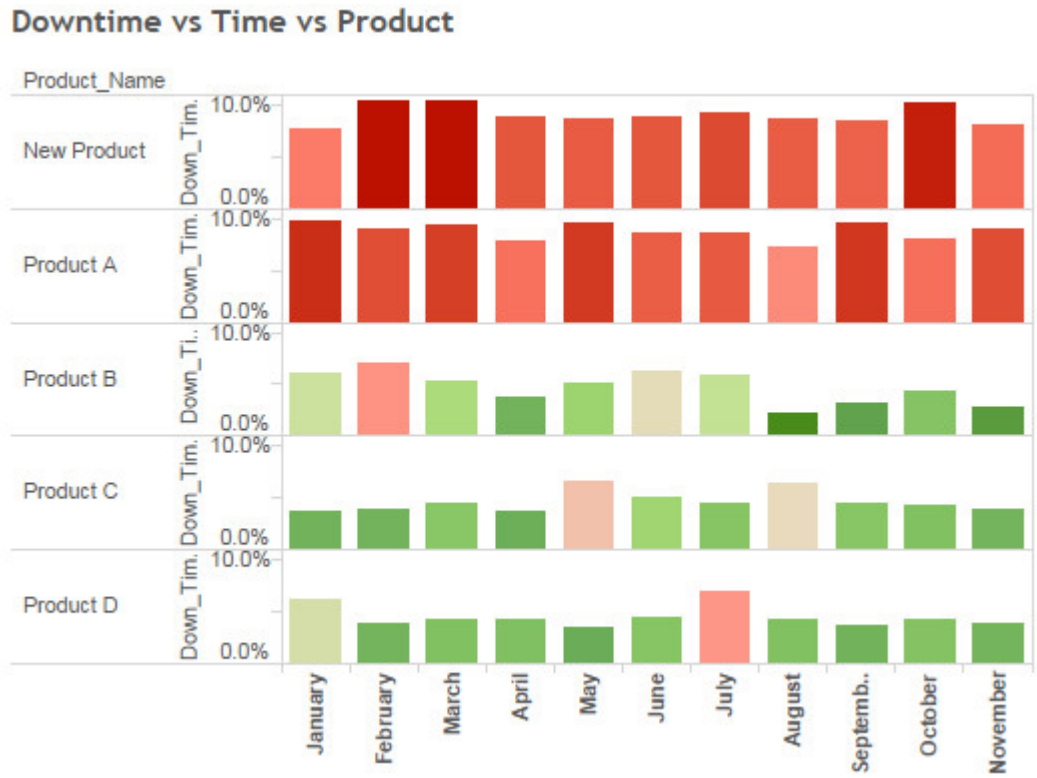

We can instantly see that the site average is being affected by a “New Product” and “Product A”. It is evident that our downtime issues are product specific.

Going deeper into our investigation, let’s focus on Product A and bring in context the manufacturing Line details.

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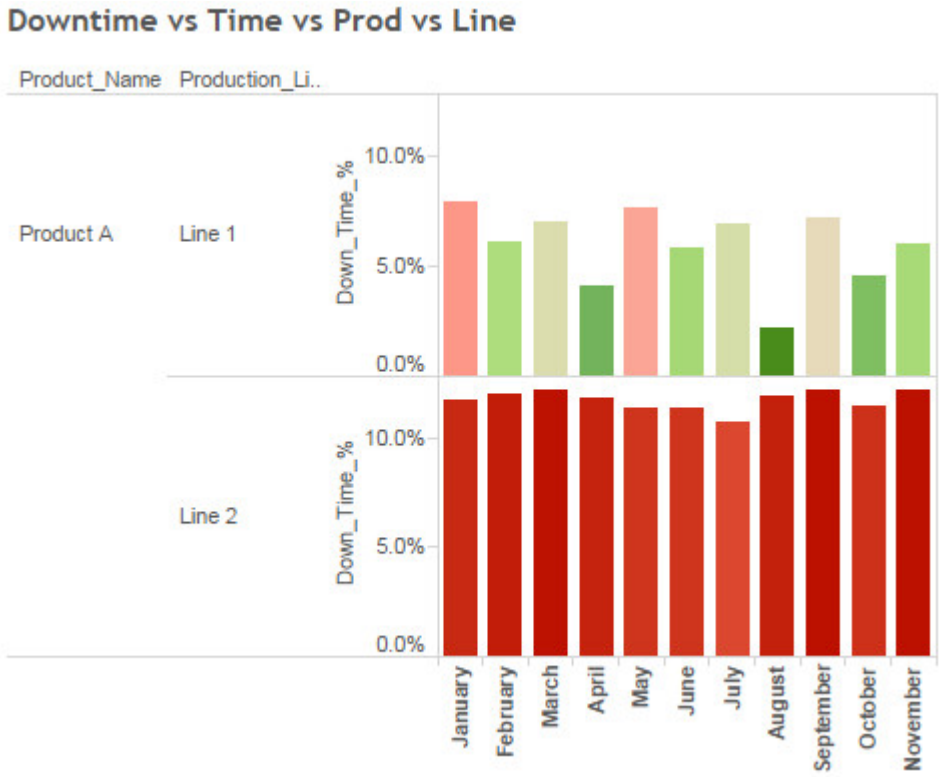

Well, that's interesting these problems occur a lot more on Line 2.

This narrows considerably the investigation work.

We can go a lot further focusing on Product A, Line 2 and bringing other dimensions such as the shift name, shift leader in order to identify patterns, performance or training issues.

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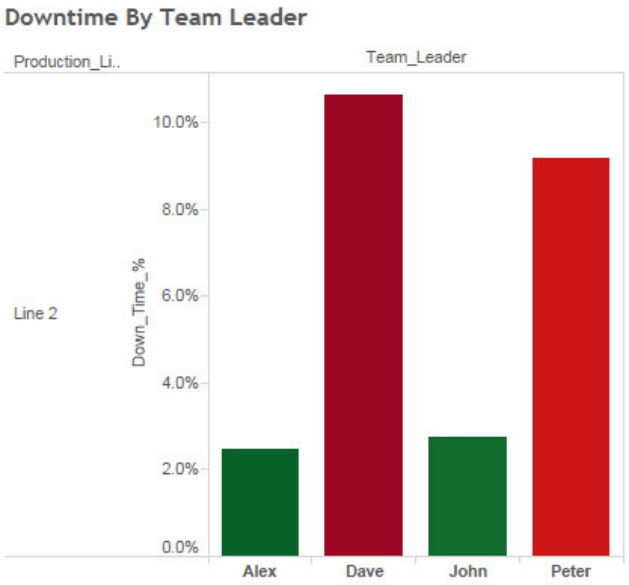

Implementation Road Map

Projects of this nature are typically strategic and we would recommend involving a variety of stakeholders from Site Management through to operational representation.

A proof of concept on sample data from the plant is probably the best way to approach as the scope is not typically well defined. It allows the end user to discover the full potential of the system on a small area of the plant, and then scale the project accordingly.

The implementation work involves a variety of control areas:

- PLC to make available low level equipment information or data collectors
- SCADA to combine real time displays
- Site wide Historian to add new performance related logging
- Analytics servers and rendering on Site intranet and mobile platform

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Significant Operational Benefits

Savings (£)	The end-user uncovers new operational improvement opportunities through a detailed understanding of trends and patterns. No need to dedicate resources to perform manual data crunching on excel anymore
Infrastructure	We bolt on to existing infrastructure to minimise Capex. The Analytics is delivered through web based Dashboards.
Self-Service	Self-configurability is the main attraction of this technology. The system will be configured by different users to suit specific needs. No reliance on individuals to compile the bespoke reports. “Single version of the truth”
Users	Plant Management, Production, Continuous Improvements, Engineering, Maintenance. All users will investigate and tailor intuitively their own reports and dashboards

We help our customers to save money and increase performance in the area of process and plant automation. We do this through the unique combination of Systems Integration, Consultancy and Performance Management services using our team of control system experts.

Our customers include major companies in the Pharmaceutical, Utility, Food, Nuclear and Chemical sectors and also R&D companies who recognise our ability to listen to their needs.
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“There have been numerous process improvements since this project took place. The obsolescence issue of course has been addressed. But more importantly, we introduced a range of visual KPIs and other validation flags which help us to run the facility more efficiently.”

Control System Manager

Registered in England: Peak42 Ltd
Sci-Tech Daresbury, Vanguard House, Keckwick Lane, Daresbury, Cheshire WA4 4AB

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