Data dashboards to improve a company's business intelligence

Business software used at two aluminium companies brought dramatic changes in the way people work. In the form of screen dashboards it has driven accountability. Everyone can see the images which has helped make people realise their actions influence the numbers seen every day. **By Paul Grill***

A few years ago, oil prices dramatically increased causing petroleum prices to more than double in the USA.

Many US-based airlines had to take quick and dramatic steps to remain in business. They needed to make reductions in their operations to reduce costs with the least effect on their profits.

They needed to know information such as which aircraft used the most fuel, which cost the most to maintain, which routes were the least profitable. Yet knowing this information for yesterday, last week or even last month does not necessarily provide an accurate picture.

They had to analyse this information over weeks, months and even a couple of years to make the most informed decision. Using current and historical data from both a company's own data sources and others that are publically available enables it to both look for past and current patterns and extrapolate those out to predict future trends.

This is known as Business Intelligence, which is a way to view and analyse data to better understand why something happened, is happening or could happen.

While most large organisations today use business intelligence computer software, very few actually understand its real potential. The data is important and if it is inaccurate the business intelligence obtained is also likely to be inaccurate.

But it is not just about the data. Business Intelligence is 50% data analysis and 50% human action. A company may have accurate data and the best business intelligence software available but it is up to individuals to interpret and act on the results. So a new form of business intelligence is starting to emerge known as Inspired Business Intelligence. While business intelligence looks at what is known to solve problems, inspired business intelligence sees beyond what is known to discover amazing things. It takes that 50% human action and makes it pro-active rather than reactive.

Fig 1 An example from the dashboard at Aluchemie

Aluchemie

There have been two recent examples of inspired business intelligence in the aluminium industry. The first was at Aluchemie, an anode manufacturer in Rotterdam, The Netherlands. It was about to roll out a new Manufacturing Execution System (MES) software application for managing and monitoring work-in-process on the factory floor. While this new application was a leap forward for Aluchemie, it lacked a compelling and exciting presentation and interface to engage staff to get them interested.

So an individual on the MES team who knew about business intelligence put together a prototype dashboard to bring the MES data to life. Two people put together a dynamic, graphic visualisation packed with business value.

The dashboard combined more than 100 charts into a single access point. It incorporated a trend analyser for capturing trends on each of its six key performance indicators. It enabled viewing of daily production by process and by 24-hour period or each of the three shifts so production managers could make daily adjustments to work flow.

The software examines downtime and causes at a detailed level, such as an individual furnace. Daily information is viewable for a rolling 30 days for each of the production areas with the option to collapse or expand those 30 days.

Year to date information comparing week to week and month to month on metrics such as OEE, production and rejects for each of the production areas is available at a mouse click.

The Aluchemie dashboard exceeded expectations and was adopted by management and supervisors. It is reliable and easy to configure to keep pace with growing business needs, and has also identified production line issues.

Most importantly, it has inspired the people at Aluchemie to look beyond the data. Through the dashboard, shift supervisors were able to see where some colleagues were struggling so initiated self-improvement for the department without any management intervention. Aluchemie is working on other dashboards for finance, budgets, real-time reject rates for the paste plant manager and safety certificate tracking and reporting for contractors.

Sohar Aluminium

The second example is at Sohar Aluminium, Oman.

At the beginning of 2011, the company started a LEAN Initiative at the GM and operational level. As part of the initiative, LEAN Centres were created where charts were hung on the wall and reviewed on a daily, weekly or monthly basis.

As many of the KPIs were correlated with the company objectives for the year, the CEO wanted a business intelligence dashboard to make this information transparent and available to everyone.

Every Sunday the communications

*President, InfoSol

Figs 2 and 3 Examples of the dashboard used at Sohar Aluminium, Oman. The dashboard has been linked to environmental data such as outside tempertaure and wind speed

department manually collected the data for the KPI's by calling each department individually. It would then go through several revisions as people often provided information that needed to be updated.

One of the challenges for the company was to collect the data and populate the dashboard efficiently when most of the KPIs are manually entered.

Staff overcame this by using a write-back feature to collect everything into a central, controlled database.

The software checked and notified people when data was not being entered on time by automatically emailing them a dashboard, listing the missing information and including a link to the data entry dashboard. Considering how much time the communications department spent chasing data, it was eager to make the change.

Warning notice

If any KPIs were not updated by noon on Sunday, the people responsible for the data, their backups, and their manager received the First Notice dashboard via email reminding them to update. At 4pm, the software checks again and sends out a Second Notice dashboard via email, increasing the distribution list to include the General Manager responsible.

As there are four General Managers and numerous departments, this is a feature that gets the right information to the right people. Users enter the information on their own, without the repeated requests previously required. It has led to a substantial improvement in accountability and accuracy. The main dashboard was developed to be in line with the LEAN KPIs, with an emphasis on visual display and efficiency.

Melinda Dennis, the Sohar Project Manager leading the dashboard initiative, said: "The goal was to make it easy for anyone to quickly see if we are on target or not. In addition, we wanted people to be able to communicate within the dashboard if they had additional information to share, so we created multiple comment bars with options to hover over info buttons or trend buttons and see what information was available.

"Also, during the initial data collection phase, we found that it took us several weeks to track down the appropriate names of the people responsible for the data. To make this more accessible to everyone, and so people know who to contact if they have a question about the data, we included the responsible names in the info field.

"This also helps ensure accountability and has contributed to people making sure their data is correct the first time."

The dashboard design is packed with other visual features. A Sohar Aluminium logo appears alongside each KPI that is directly related to the company objectives on the General Manager tab of the dashboard. The company objectives are tied to employee performance bonuses at the end of the year.

By hovering over this icon, the KPI will automatically be replaced by a display of the objective's information. It means every employee in the company can see information on the objectives as well as current results towards that objective. It means they are involved in the company results by consciously working as a team to achieve the targets.

Implementation

The solution was implemented in less than two months. The deployment, adoption and effectiveness of the initial dashboard inspired the Sohar IT team to extend its capabilities by adding new functionality to the home page dashboard, which is the entry point to the application.

The dashboard has been linked to the environmental data for the plant to display key information, including temperature and wind speed. Since the smelter is located in the desert it is subject to extreme wind and high temperatures. When it is particularly windy, all work at certain heights must be stopped. Omani law states that if it exceeds a certain temperature, outdoor work must cease.

The Sohar IT group converted the environmental data into text files then fed into a SQL database, which in turn feeds the dashboard. Using the notification system emails are sent to all managers if either KPI value exceeds the set limits. Since all managers have Blackberry's, they receive the message instantly and can inform their staff to stop activities.

This operates on a more real-time basis than the previously available system and contributes to Sohar's safety initiatives. The solution also provides cost savings over the alternative solution suggested by the vendor of the environmental system.

Melinda Dennis concluded: "The challenge we now face is to keep up with all of the requests and plans for new dashboards. We started with a culture dependent primarily on Excel and through the InfoBurst business intelligence solution, we are changing the way people look at data and moving towards a more dynamic, automated process.

"Not only that, but the dashboard is helping to drive accountability and transparency in our daily work and ultimately consistent, accurate data.

"Through our dashboard, everyone now has the ability to talk about and respond to the same data, no matter what level and what department they belong to."

These two examples demonstrate the power of Inspired Business Intelligence and how it has improved the effectiveness of the aluminium industry. As more companies adopt the solutions, it will benefit their operation and culture. ■

Contact

Paul Grill, Infosol Inc, 1831 W Rose Garden Lane, Suite 8, Phoenix, Arizona 85027, USA
Tel +1 623-707-7600
Email pgrill@infosol.com
Web www.infosol.com