Yellow Buses builds an award-winning transport network

Harnessing analytics to enhance route planning, offer better-value fares and monitor vehicle efficiency

Overview

Business challenge
Operating in a competitive market, Yellow Buses needs to operate as efficiently as possible while maintaining excellent service levels for customers in the Bournemouth area. When the company's ownership changed, it saw an opportunity to extend its use of analytics to help streamline operations, but first it needed to find a solution suitable for a smaller business.

Solution
Yellow Buses worked with Budgeting Solutions, an IBM® Business Partner, to deploy IBM Cognos® Express and build a number of reporting and forecasting models, capable of analysing ticket sales and calculating revenue by route, fare type, time period, boarding and alighting stages, date of journey, and by passenger, fare or absolute revenue. The solution provides rolling forecasts and 'what if' analyses of revenue and cash flow, as well as insight into the performance and reliability of individual routes and buses within the fleet. In the near future, the company will also use the solution to analyse the performance of its bus drivers.

Yellow Buses is a local bus operator in the Bournemouth area of southern England. It has a fleet of 130 vehicles, including both buses and National Express coaches, and employs around 400 people. It operates more than 35 routes, ranging from high-frequency commercial routes to school bus services, and serves over 14 million passenger journeys per year. The company achieves an annual turnover of around £20 million.

Yellow Buses has been using IBM business analytics software for a number of years. Starting with IBM Cognos TM1® for financial planning and budgeting, the company soon realised the potential of the solution for analysing sales data from its buses' ticketing systems. By collecting and monitoring this data, the team at Yellow Buses was able to use a combination of current and historical data to forecast revenues, and could break down the results by route, fare type, time of day or even individual vehicle to gain deeper insight into its operations.

Finding a new solution
In early 2011, Yellow Buses was sold to RATP Dev UK, a major international transport operator. As a result, the company no longer had access to its former owner's Cognos TM1 environment – leaving a significant gap in its reporting capabilities.

"Losing access to TM1 was a challenge, but we also saw it as an opportunity," says Andrew Smith, Finance Director at Yellow Buses. "There were still a lot of areas of the business that we wanted to bring into our business analytics environment, and with our new status as a smaller, more independent and agile company, we realised that there was a lot of potential for developing analytics solutions that could be optimised specifically for our business.

"The first step, however, was to find a solution that would be the right size for our business. The full version of TM1 was a larger-scale solution than a company in our position could reasonably justify, so we began looking for alternatives. When we saw IBM Cognos Express, we realised it was exactly what we needed – a solution that uses the same analytical engine, but is specifically designed to meet the needs and budgets of mid-sized businesses."

Business Benefits

- Enables the company to predict the effect of fare changes on passenger numbers and revenues, helping to calculate the right prices for each route.

- Gives the finance team an accurate way to forecast revenues and cash flow, simplifying budgeting and making more efficient use of resources.

- Provides detailed daily insight into the operation of a new bus route, helping to optimise all aspects of the service and enhance the passenger experience.

- Allows the company to identify buses with low fuel efficiency or high maintenance costs, and intervene to improve the overall efficiency of the fleet.

- Analytics has contributed to a significant increase in profitability while maintaining excellent customer service: the company has won major industry awards in each of the past three years.

Building a partnership

To help with the implementation of IBM Cognos Express, Yellow Buses turned to Budgeting Solutions, an IBM Business Partner with vast experience in business analytics implementations and technologies.

"We didn't just want a contractor to come in and deploy something – we wanted to build an ongoing, long-term relationship with a partner that would understand our business and help us continually improve," explains Andrew Smith. "Budgeting Solutions came with good references, and we were impressed with their demonstrations of what Cognos Express could do for us, so we decided to go ahead with them. During the project itself, they helped us hit every deadline and definitely proved that they were the right choice as a partner."

Sophisticated forecasting models

The initial stage of the project was to develop two OLAP cubes in IBM Cognos Express. The first contains detailed information from the buses' ticketing system, encompassing routes, vehicle numbers, fare types, passenger numbers, boarding and alighting stages and timing data; this is used for deep-dive reporting into specific areas of the business. The second cube contains aggregated data and provides a basis for forecasting. Each month, the company produces 12-month rolling forecasts for profit and loss, which help to guide financial decisions and also provide a basis for setting annual budgets. It also generates a three-month cash flow forecast which helps the company decide how much capital it needs to keep on deposit.

"The big advantage of our forecasting models is the ability to run different scenarios and perform 'what if' analyses," says Andrew Smith. "We can use the existing data to predict what would happen if we make changes such as raising or lowering the price of a certain type of fare, or running a route more or less frequently. We now have the means to look at the profitability of each route, which we were never able to do before – so we can look at ways to improve low-yield routes and maximise revenues from the most profitable ones. We recently launched a new route, and these types of analysis have been invaluable in helping us make the right decisions on fares, frequency and other important operational factors."

The scenario analysis capabilities are highly flexible: for example, as well as predicting the change in revenues that might result from reducing fare prices, Yellow Buses can enter a target revenue figure and find out how much the fare prices would have to change to achieve it. The ability to perform both top-down and bottom-up analysis helps to guide the company's strategy and make better decisions to achieve financial and operational targets.

Vehicle and driver performance analytics

Following the success of the forecasting model, Yellow Buses and Budgeting Solutions have also been working together to design a vehicle analysis solution, which will be launched in the near future. The new solution will enable Yellow Buses to manage each bus as

Solution Components

Software
- IBM® Cognos® Express

IBM Business Partner
- Budgeting Solutions

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—Andrew Smith, Finance Director, Yellow Buses

an individual asset, looking at factors such as maintenance costs, the frequency of breakdowns, fuel costs and routes travelled. This will help the company identify buses that are faulty, inefficient or reaching end-of-life, saving fuel and maintenance costs and improving the overall reliability of bus services.

"Once we've got the vehicle analytics up and running, we're thinking about bringing driver performance into the mix as well," comments Andrew Smith. "We already have a system that collects data on how efficiently our drivers operate their vehicles, but it isn't very visible at the moment. If we can integrate it with all the other data in the Cognos Express solution, we should be able to get an even more accurate view of how well we are performing."

Driving home the benefits

Andrew Smith concludes: "IBM Cognos Express has already substantially automated many of our reporting and forecasting processes, while also giving us access to information at unprecedented levels of detail and accuracy. By reducing the data collection and number-crunching aspects of reporting, it enables us to focus on actually analysing the information and making better decisions.

"As a result, we feel that our business analytics strategy is making a very real contribution to the success of our business – both in terms of increasing profitability and improving customer service levels. We've won top industry awards for each of the last three years, which is a testament to our success; and with the evolution from TM1 to IBM Cognos Express, we expect this positive trend to continue."

About Budgeting Solutions

Budgeting Solutions is a recognised IBM Business Partner specialising in IBM Business Analytics technologies for planning, budgeting, forecasting, consolidation, reporting and analysis. It delivers a full range of services supported by strong financial acumen, with five directors who are qualified accountants. Since its formation in 2005, the company has worked with more than 200 blue-chip clients to improve their budgeting and planning processes. Its aim is to work in partnership with its clients and build a trusted and long-term relationship that delivers on all levels.

For more information about Budgeting Solutions, please visit
www.budgetingsolutions.co.uk

About IBM Business Analytics

IBM Business Analytics software delivers actionable insights decision-makers need to achieve better business performance. IBM offers a comprehensive, unified portfolio of business intelligence, predictive and advanced analytics, financial performance and strategy management, governance, risk and compliance and analytic applications.

With IBM software, companies can spot trends, patterns and anomalies, compare "what if" scenarios, predict potential threats and opportunities, identify and manage key business risks and plan, budget and forecast resources. With these deep analytic capabilities our customers around the world can better understand, anticipate and shape business outcomes.

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