MiX | TELEMATICS
MOBILE INFORMATION EXCHANGE

CUSTOMER
CASE STUDY

"We've added value to our process, which enables us to keep our vehicles on the road and operate a safer, more reliable fleet for our customers and drivers. - **Gareth Mole, Engineering Director, Cardiff Bus**"

Cardiff bus
bws Caerdydd

About MiX Telematics

MiX Telematics is a leading global provider of fleet and mobile asset management solutions delivered as Software-as-a-Service, or SaaS, to customers in over 120 countries. The company's products and services provide enterprise fleets, small fleets and consumers with solutions for efficiency, safety, compliance and security.

CUSTOMER
Cardiff Bus

REGION
Wales

BUSINESS
Passenger transport | Bus and Coach

TOTAL FLEET SIZE
220

VEHICLE TYPES
Buses

CUSTOMER SINCE & SUBSCRIPTION
2006 / MiX Fleet Manager with RIBAS Display, MyMiX & MiX Insight Agility

AIMS
Reduce fuel consumption, reduce costs, increase efficiency, increase customer satidfaction

RESULTS
Improved monitoring of vehicle stats for preventative maintenance, better data analysis

CUSTOMER WEBSITE
www.cardiffbus.com

Established **bus company** achieves **long-lasting results**

Faring well

Cardiff Bus is the main operator of bus services in the Welsh capital of Cardiff and surrounding areas, with a history dating back to 1902. The company does their "We'll get you there" motto proud by transporting 100,000 passengers on 3,000 journeys every day using their iconic green and orange fleet.

In the first phase of the project, Cardiff Bus implemented MiX Fleet Manager along with the RIBAS display. These solutions were used to track driving behaviours such as speeding, hard braking, over revving, hard acceleration and excessive idling. Using the MyMiX driver engagement app, drivers could see their driving events and associated scores. Based on these scores, training was then provided to drivers to help them drive in a safer, more customer-friendly and fuel-efficient way.

In the second phase, Cardiff Bus aimed to build on the value established in the first phase and work towards preventative fleet maintenance. This was done by shifting the focus to data analysis.

Implementing long-term solutions

Cardiff Bus's engineering team selected four key parameters to measure. These parameters were chosen with the aim of extending the life of vehicles, decreasing downtime and increasing customer satisfaction. This is how the four parameters are monitored on an ongoing basis:

1. Engine temperature
To minimise the risk of service loss, the company's articulated buses (otherwise known as "bendy buses") were the first vehicles to be monitored for engine temperature.

When a vehicle's temperature reaches 103° Celsius or above, the engineering team receives an email alert to notify them that a particular vehicle requires close monitoring. If, during that time, the temperature continues to rise above 103° Celsius (not stabilising or dropping over a period of time), the vehicle is pulled from its service route, with a replacement vehicle waiting to transfer customers on the route to minimise any disruption.

2. Oil pressure
Monitoring oil pressure helps the engineering team see when an engine might be developing an issue and indicates that action should be taken to prevent damage. The MiX solution generates daily and weekly reports so that, should oil pressure be less than ideal, maintenance can be scheduled when a vehicle is in depot.

3. Battery voltage
The engineering team wanted to know when vehicles lose battery voltage as they so that they could prevent incidences where vehicles are non-starters. Non-starters can delay or prevent vehicles from delivering service. Should a vehicle's battery voltage fall below 22V or below 24V while driving, engineers are alerted via email and action can be taken before the battery runs completely flat.

4. Accelerometer data
This data is helpful in establishing whether the condition of the road surface is potentially causing mechanical problems. When a negative event is picked up en route, the data captured can be used to establish where problem areas are. Cardiff Bus then uses this data to talk to local authorities about improvements to road conditions and assist them by providing substantiating evidence. Drivers can also be advised to drive especially carefully on certain routes, should it not be possible to avoid the route completely.

> "The ongoing partnership, support and services that MiX provide is the key to this project's continuing success."
>
> **Cardiff Mole, Engineering Director, Cardiff Bus**

RESULTS

> "This solution helps us flag any problems as they occur so we can do proactive maintenance."
>
> **Mike Lang, Senior Workshop Manager, Cardiff Bus**

Preventative measures

Due to engineers having the ability to measure engine temperature, oil level pressure, battery voltage and accelerometer data, Cardiff Bus believes they may have saved at least three engines. This equates to a cost saving of roughly £30,000, taking into consideration both the purchase of a new engine and any downtime caused by the maintenance. Maintenance can now be carried out before further damage occurs, which helps increase the longevity of Cardiff Bus vehicles.

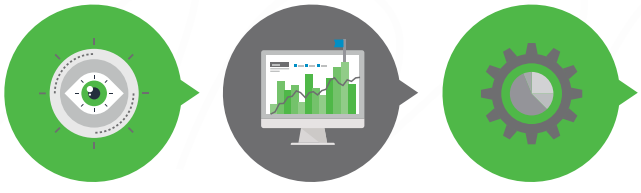
Customer satisfaction has increased significantly due to a number of factors. Vehicle parts don't have to be replaced as often which leads to a reduction in costs, downtime and operating costs. Ultimately, this translates into savings for Cardiff Bus.

A decrease in breakdowns equals less inconvenience for customers on their journeys. At all times the number of buses required are on the road and working. When this is not possible, the engineering team has the ability to provide replacement vehicles as soon as they are needed with little to no disruption, making sure the customer doesn't get impacted too much.

Additionally, the good driving habits that the drivers developed during the first phase of this project resulted in a smoother ride for customers. Drivers are more aware of their impact, and drive safer. They also notice poor road conditions and adjust their driving accordingly. Ultimately, this results in less vehicle damage and fewer maintenance costs.

The improvement of driver behaviour is still ongoing as MiX Telematics training now forms part of the Drivers CPC qualification training at Cardiff Bus. This training is supplemented by driver workshops held in the employee canteen on a bi-monthly basis.

Preventative results



Increased monitoring of engine temperature, oil level pressure, battery voltage and accelerometer data for preventative maintenance.

Increased sophistication of data analysis.

Pre-emptive management of issues.

This project is still ongoing and the team at Cardiff Bus plans to look even more in-depth at how the engineering data captured by the MiX solution can potentially assist with preventative maintenance on bus doors and braking systems.