



Cygnet **Infotech**  
IT is about you

# Delivering Smart Transport and Traffic Management Solutions

That Streamline Operations and  
Enhance Bus Passenger  
Travel Experience

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## Business Scenario

With increasing vehicular traffic, our client was faced with challenges in implementing a sustainable smart transportation solution. While coordinating and working closely with the government bodies and private transport operators, the client's primary goal was to improve the traffic flow in the counties and reducing environmental impact of traffic. Being a pioneer in the customer service, they required a solution where they could integrate real time analysis, awareness and forecasts for traffic operations, informed personal travel information and transit fleet operation information from varied transportation systems.

Client also required integration with the environmental sensors to track the carbon emission by the traffic. While catering to these solutions, they also raised a requirement of including the passengers in the loop and create a mobile application which could provide them with critical information, helping them to plan their journey.

The client saw an opportunity here and asked Cygnet to research, analyze and develop a solution that could provide end-to-end transport information to its commuters. With Cygnet, sharing a successful professional relationship with the client for around 7 years and knowing Cygnet's expertise across various fronts like handling cross-functional teams, providing agile methodology the client zeroed-in on us as their technology service provider.

## Client Profile

Our client is a leading UK based ISV focused on delivering intelligent and deeply integrated Traffic and Public Transportation solutions to the government bodies and private transport operators. The smart solutions are tailored as per the requirements of Traffic Managers, Emergency Planners and the Travelling Public which empowers them to model, monitor and control the public transportation management system. They have their systems running live across various counties in UK and Australia.

## Cygnet's Solution:

During the initial stage, Cygnet's team made sense of the existing operations and analyzed the workflows to gain better insights. After exhaustive research, Cygnet's team mapped the pattern using analytics. Thus, the team came up with a comprehensive business solution suiting the client's requirements.

# Features considered to create a business solution were:



## Real time passenger information system

Real time passenger information system can assist in real time updates to the commuters. These updates are largely in lines with real-time traffic updates, location based forecasts, advanced decision support systems, instant updates on mobile and VMS, close integration with various thirdparty systems for recurring weather updates. Our one stop time table publishing empowers the passengers further by designing and producing accurate timetables. It service includes precise arrival and departure times of the buses along with an integrated map covering all the routes in the network. These features enable in-timely management of road infrastructure and commuters to decide upon whether to step out on roads or not.



## Travel information portal

Travel information portal assists with real time traffic updates about weather v conditions, possible road blocks, congestions and accidents and incidents on the road routes. This system leverages a range of channels like mobile apps, SMS, social media integration, on street displays and kiosks. It positively impacts the travel time, flow of traffic, fuel efficiency and emissions since it provides integrated journey planning to the passengers.



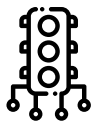
## Air quality monitoring

Our solution for air quality monitoring enables us to estimate pollution and quality of air at every point within the road network. This allows our engineers to strategize, generate reports and send out reports to the public. The algorithms herein use Bluetooth, detectors, adaptive controls, automatic number plate data, vehicle location and journey time information.



## Fault and asset management for all highway data

Fault and asset management system assists in checking the health of every asset at the bus stand. It is remotely managed where local authorities can track faults at remote locations or report faults occurred to the public infrastructure. The public can also report directly about any fault or damage in the public infrastructure. Access to real time status for assets is given to controllers and mangers. Bespoke integration is implemented to remotely monitorfault data sources.



## Adaptive control platform for real time traffic signal

Adaptive control platform for real time traffic signals allows traffic operators to scheme to monitor, manage and prioritize as per their requirements. This system can deeply integrate with other systems to utilize all the benefits of big data. It uses and integrates data like temporary planned restrictions like street works, unplanned restrictions like accidents or road closures, real time road speeds which can help decide signal priority for vehicles, network restrictions like train crossings. This traffic management solution helps to make the transit service faster and more reliable.



## Strategic transport command and control system

Strategic transport command and control system is a web and cloud based UTMC solution with adaptors that provides single view of all highway information. The key features of this system includes highlighting critical issues within the network and fault management showing latest outstanding faults. It enables manual adding, deleting and editing of various incidents, accidents and roadworks on the highway network.

## Business Benefits

**95%**

accuracy in whole network view predictions

70% improved operational efficiency at the bus terminals

Reduction in Operational and Maintenance Cost

Optimized road networks and controlled passenger flow

Customer experience and loyalty management

Deadlock situations eliminated

Mobile app assisted for real time updates about commute and better travel planning

Eco-friendly solution

## Tools & Technology



### FRAMEWORK AND TECHNOLOGY USED:

- Net framework 4.0, 4.5
- C# .Net
- ASP .Net MVC 4.0
- ASP .Net 4.0
- Entity Framework 5.0
- Microsoft BI Services
- Umbraco
- Windows Services
- WCF Services
- .Net Compact Framework 3.5
- Win CE 6.0
- SignalR
- Multi-threading & Socket Programming
- Open Layers
- Mapping Services.



### DEVELOPMENT TOOLS:

- Microsoft Visual Studio 2013 / 2008
- SQL Server 2012 Management Studio

# About Cygnet

Cygnet Infotech is one of the most trusted names in the IT space delivering technology solutions to global clients across 29 countries. Born out of a vision to create software development company where quality, innovation and personalized services trump low cost, makeshift solution, Cygnet partners with its client to help them transform in to high performance businesses.

Cygnet has deep industry and business process expertise, global resources and a proven track record in delivering innovative technology solutions. Cygnet can mobilize the right people, skills and technologies that improves business performance.

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Founded in 2000,  
currently with offices  
across 6 continents



900+ Employees  
Delivered 2000+  
Projects



18 Years of Experience  
Serving 750+ clients  
in 35 countries



95% Client Retention



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