



Cygnets **Infotech**  
IT is about you



# Australia's First Dynamic Stand Management System

to automate bus allocation  
& improve overall mobility  
of passengers

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## Client Profile

Our client is a leading UK based independent software vendor focused on delivering intelligent and deeply integrated Traffic and Public Transportation solutions to government bodies, private transport operators, citizens via RTI boards and journey planners across various counties in the UK and Australia.

## Business Scenario

Our client delivers smart solutions based on the requirements of emergency planners, traffic managers and the travelling public which empowers them to model, monitor and control the public transportation management system. As a pioneer in customer services, their primary goal was to enhance transportation for passengers in an Australian county. They required a solution to facilitate bus riders and drivers with reliable, connective, accessible, and legible bus transit information.

## The Challenges Observed in Bus Transit Management

- Lack of proper management due to growing number of services
- Limited resources and manual management of operations
- Manual processes of recording & updating information
- Lack of integrated services resulting in the variable flow of data
- Flawed data interpretation from sources such as ANPR, detectors, etc.
- Technology limitations while integrating with third party systems
- Inability to trigger events on driver and passenger displays based on real-time information
- Inefficient planning and regulation due to lack of reliable information at the right time

Client partnered with Cygnet to research, analyze and design a technology solution that automates bus allocation at the underground bus stand. The allocation should be based on some parameters i.e. nearest stops, available stops, schedule stand, and dynamic stand.



### Dynamic Stand Management

**System** is a first of its kind technology solution. Each bus is automatically allocated to one of sixteen stands on arrival into the underground bus port and the information is communicated to passengers via. Large passenger information displays in the passenger lounge, while driver display shows platform allocation and direction to the drivers.

# Cygnets Solution

Technology and domain experts at Cygnets discovered different scenarios like civil structure of underground bus stands, stand information, layover information, graph theory, raw data of road, distance & travel time between different stops.

We also understood bus riders' and drivers' experiences from the client's perspective, the problems they faced and how the available solutions helped them yet fell short. Cygnets team identified the potential technology gap in the bus transit management and proposed a futuristic solution. We started with a functional working prototype which was tested and positively reviewed by the client.

A futuristic dynamic stand management system was developed. The airport-like bus port consists of 12 stands supporting 220 departures per hour and there are 42 stands in total including layovers. It is incorporated with Australia's first dynamic stand management system on over 100 digital screens powered by Scala. The DSMS can be easily integrated to high-tech systems to support the new bus port. It notifies passengers information including but not limited to the stop assigned to different buses, the estimated time before departure and more, all throughout the facility.

This highly scalable and robust system can be easily integrated with third-party hardware systems. It integrates with mobile applications to display notifications which facilitates users with real-time journey information.

This new facility enabled smooth throughput of buses at the bus terminal and ensured optimal utilization of the available space.

## Implemented Solution



1500 vehicles including light rail and heavy rail integration



Weekly operational data updates outside of services



System event management based on operational scenarios



Ability to provide general public alerts



Facility to cancel journeys for specific reason or purpose



Display messaging inform drivers, inspectors & controllers



Security management integrated with police



Information on diversions and road closures



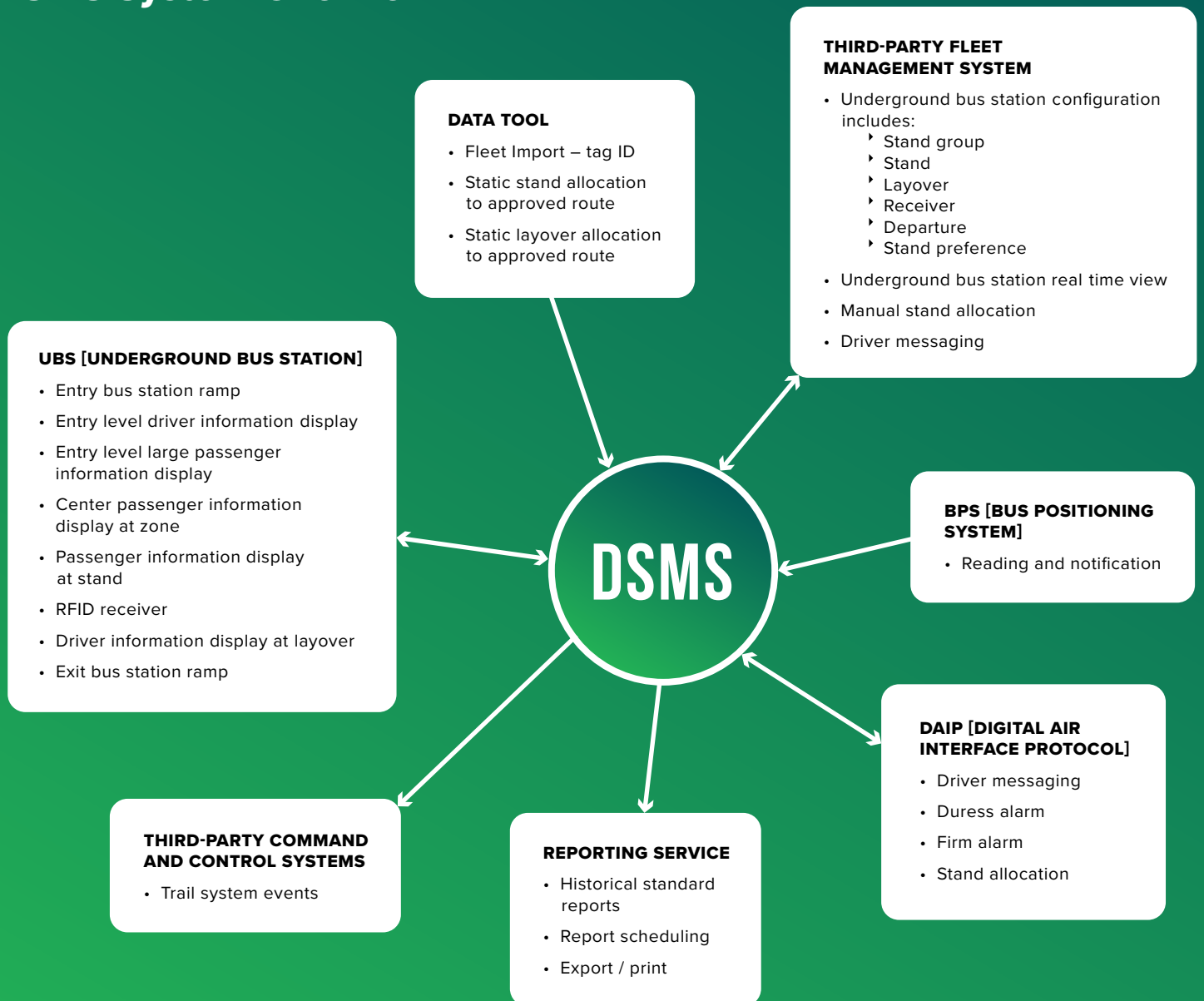
Fire alert integration to alert real-time in case of fire



# Key Features

- Bus allocation through scheduling and dynamically at desired bus stands
- Users can view and manage all bus movements on the stand
- Managing database of layover and bus stand allocation & system events
- Identifying different types of buses by matching bus numbers
- Recognizing stand allocation errors and alerts the controller
- Permitting user to manage stands manually and dynamically
- Allowing user to close a stand for a specific purpose and/or time period
- Allowing the controller to switch the system into alert or evacuation mode
- Displaying information of bus platform and departure time by audio/visual media
- Showing platform allocation and direction to the drives via 'driver displays'
- Allowing the controller to reserve a bus stands for permitted routes, trips or special events such as rail replacement services

# DSMS System Overview





## Benefits

- Reduction in the waiting period of buses for platform slots
- 70% improvement in the utilization of the terminal space
- Better convenience provided to commuters and drivers
- Provides accurate real-time and stand allocation information
- Helps to better manage passengers at the terminal
- Ensures safe boarding and landing of passengers from the buses
- Better arrangement of bus parking at the allocated platforms



## Tools and Technology

- Win CE 6.0
- .Net Family
- .Net Compact Framework 3.5
- Microsoft Visual Studio 2015 / 2013 / 2008
- SQL Server 2012 Management Studio
- Microsoft BI Services



# About Cygnet

Cygnet Infotech is one of the most trusted names in the IT space delivering technology solutions to global clients across 35 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 clients 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.



Founded in **2000**, currently with offices across **6 continents**



**1000+ Employees**  
Delivered **2000+**  
**Projects**

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