

Innovation and Infrastructure in the Bus Industry

In the first half of the 20th century, mass transport was provided in the great cities and urban areas by trams, trolley buses and railways. Motor buses gradually replaced trams and trolley buses in the 1950s and were the obvious choice to serve the massive urban housing estates built in the post war period.

Describing the bus industry in 1952 and its development since, in terms of vehicles, operations and technology, shows the extent to which it reflect social and economic change in the North East over the last sixty years.



The Bus Industry in 1952

In the first half of the 20th century, car ownership was relatively low and mass transport was provided in the great cities and urban areas by trams, trolley buses and railways. Buses, however, needed little in the way of dedicated tracks or roads and it was this very feature that saw them replacing trams and trolley buses in the 1950s.

The bus industry in 1952 was what many advocates think of as its 'golden age'. Bus travel was at its peak as the UK entered a period of relative prosperity following the post-war austerity. Most bus operators, even in rural areas, made a profit.

People had more disposable income but cars were still out of their reach. They used the bus to travel to and from work and with heavy industry dominant, work was often located along the river banks in the north east. With television still relatively new, entertainment and leisure were largely based outside of the home and people used buses to take advantage of these activities.

The vast majority of bus services in the larger urban areas of the north east, with the notable exceptions of Gateshead and parts of North Tyneside, were owned and run by the highway authorities, who also looked after the road network. Elsewhere services were provided by 'company' buses, either United, which was then part of the nationalised Tilling group or Northern, part of the private British Electric Traction (BET) group.

However, the north east also had a strong tradition of independent bus operators with famous names like Economic of Whitburn, Bishop Auckland based OK Travel or the delightfully named Cosy Coaches of Langley Park servicing areas where 'coal was king'.



The buses themselves were mainly the traditional half cab double deckers with the engine at the front, an open rear platform and staircase usually seating 56 people in a very compact 27ft by 7ft 6ins (approx 8m by 2.25m) with a crew of two, a driver and conductor.

Crew operation meant that dwell times at stops were short. In rural areas, the bus may well be a single decker (or saloon) but still with the engine at the front and occasionally with a crew of one. Bus infrastructure, such as it was, was largely a pole and a flag at each bus stop. There was little need to mark the stop on the carriageway as there were few cars parked on the road in those days. Some stations were provided at large industrial centres to cope with workers at the end of shifts.

Town centre bus stations were common, but it was usually the ‘company’ buses that benefited from these as it was the United and Northern bus companies who provided the bus stations in most of the major towns. Northern for example provided the former Worswick Street bus station in Newcastle.

Vehicle Design

The traditional half cab double decker was a remarkably simple and rugged design which essentially evolved from the horse bus, with an internal combustion engine replacing the horse. Even in the 1950s, there was an aspiration to achieve a lower floor for ease of boarding. The Bristol Lodekka was an early attempt to address this within the traditional configuration. However, the easiest way to get a low floor was to put the engine at the back of the bus and in 1959 the Leyland Atlantean appeared.



The Atlantean changed everything, with the engine at the back and the entrance at the front. With powered doors, the driver could supervise the platform and (eventually) take the fares and issue tickets. 30ft long (9m) double deckers became legal in 1956 so the Atlantean was a much bigger beast seating over 70 passengers.

Along with its competitor the Daimler Fleetline, it quickly found favour with operators. Newcastle City Transport in particular took large numbers to replace the city's trolleybuses. The traditional half cab didn't go down without a fight. The United bus company operated large numbers of Bristol Lodekkas with front entrances whilst Northern become the only operator outside of London to operate the Routemaster, albeit in front entrance form.

In infrastructure terms, the move to larger front entrance buses often meant finding new locations for bus stop poles and providing better lighting on bus routes. Heavier buses required stronger road construction. A dense bitmac surface and sodium (yellow) lighting was then a sure sign a road was on a bus route. Until recently, buses would not enter housing estates, except on the wider roads.





In more recent years the requirements of the Disability Discrimination Act (DDA) along with parallel EU directives have led to the widespread introduction of low floor buses. In order to take full advantage of these, kerbs have been raised at bus stops and in places specially designed kerbs such as the Kassel Kerb have been used to enable the bus to get as close to the stop as possible without damaging the tyres.

Continental style articulated buses have not been used to any significant extent in the north east. Where they have been introduced, particularly on the X66 Gateshead Interchange – Metrocentre Route, modifications to stops and bus station stands have been required to accommodate their extra length. To assist this route, a dedicated busway was built along the south bank of the Tyne to allow buses to avoid congested roads and enable quicker journey times.

Changes to Highway Infrastructure

Changes in how buses operate have had a corresponding effect on the highway infrastructure over the past 60 years. For example, switching from crew to driver- only operation, along with increasing traffic levels, meant turning at termini using a reversing manoeuvre became increasingly unsafe. This resulted in the provision of turning circles at the outer termini of many urban routes.

The philosophy of traffic management was to use all available capacity and keep traffic moving. Bus laybys at bus stops were therefore increasingly provided in the late 1960s and early 1970s. However, the time taken to pull back out of a layby into the flow of traffic added to the operational time and running costs.

By the mid 1990s, the philosophy had changed to giving priority to buses. Rather than laybys, build outs were provided at bus stops which overcame the difficulty of parked cars at stops. In this respect, the fact that other traffic had to wait whilst passengers boarded the bus meant that the bus acted as an additional form of traffic calming measure.

One-way gyratories to speed up traffic generally had become common in cities but these caused delays to buses negotiating them. To avoid that and also to provide stops where passengers actually needed to be, contra-flow bus lanes were increasingly provided in town and city centres in the 1970s.



In the 1990s this approach was taken further restricting some carriageway space to buses (in bus lanes) in order to give them greater priority and shorten bus journey times on increasingly congested roads. Sunderland's Durham Road 'Superoute' was an early example of this in 1998 whilst similar measures were introduced along the Durham Road corridor in Gateshead and in most towns in the North East.

Dedicated bus-only links have been provided over the last 60 years to avoid circuitous routing, for example, in each of the Washington New Town village centres. Elsewhere new links enabled buses to serve business parks and adjacent residential areas. These were often protected with a riseable bollard. An example of this is between Doxford International and the adjacent Moorside estate in Sunderland.

Changes to Passenger Infrastructure

Not all infrastructure provision is for the benefit of bus operation. Developments have also occurred for the comfort and convenience of passengers.

In the early bus period, shelters were only provided at town and city centre locations, or where large numbers of passengers were expected, such as seaside resorts. By the 1970s, the realisation that shelters could provide space for advertising for passing traffic meant they were provided by companies such as Adshel at no cost to the operator or the local authority. Stops with no previous benefit for a shelter could now be provided with one.

Bus stations in 1952 were largely provided by the operators but few examples of these exist today. Now bus stations and, more importantly, facilities for interchanging between different modes of transport, is increasingly favoured by the local authorities and Passenger Transport Executives to encourage use of public transport.

In Tyne and Wear for example, provision of bus station interchanges at key Metro stations was a key part of the then integrated network. The interchange facilities at Gateshead, Sunderland, Regent Centre, Four Lane Ends and recently at Northumberland Park are good examples.

Changes in Technology

There have been a number of changes resulting from the industry adopting and embracing new technology. It has resulted in the emergence of a technical infrastructure.

Crime on buses is still relatively rare, but increasingly the availability of CCTV allows incidents to be recorded and investigated. This requires infrastructure both on the bus and at the depot with imaged being recorded electronically on a harddrive. The down side of this is that the bus has to be taken out of service for a few hours for the harddrive to be downloaded should an incident occur.

There has been a move to provide real time passenger information at bus stops since the mid 1990s.

These usually require a transponder fitted to the bus which is read by other transponders along the route and fed to real-time information displays at bus stops.



Changes to the Industry

In 1952 buses operated under a licensing regime under the 1930 Road Traffic Act. With the introduction of the 1968 Transport Act, there was even more political control as Passenger Transport Executives were formed to manage all public transport services on behalf of local authorities. The private BET companies were merged with the already nationalised Tilling companies to form the National Bus Company (NBC).

By the early 1980s, bus services were heavily regulated with routes approved under licence and integrated with the newly opened Tyne & Wear Metro system. Passengers were directed to Metro interchanges such as Regent Centre in Gosforth where they transferred onto the Metro to continue into Newcastle and Gateshead centres. Very few buses were permitted to cross the River Tyne as that was seen as a function of Metro.

However, the 1985 Transport Act brought deregulation. The NBC companies were privatised as were many of the municipal bus companies. New private companies emerged which are prevalent today.

Interestingly, all of the former municipals in the region (with the exception of Darlington) ended up with Stagecoach. Northern was bought out by its management and became the basis of the GoAhead group, which also took over the former OK Travel, which operated in County Durham. United, the Tilling group operator in 1952, was divided into Northumbria in the north of the region and United in the south. After leading separate existences for around 15 years, they came back together under Arriva. Almost all of the independent operators in 1952 were swallowed up by the big groups in the 1990s.



Private companies grew because of their ability to choose the services and times that were most profitable. On radial routes into town and city centres, there is demand for services during the majority of the working day and often into late evenings. However services to outlying estates, especially away from the peak travel periods often struggle, with few passengers, and so have to be subsidised by the local authority.

Today operators get subsidy through BSOG (Bus Service Operators Grant paid through fuel duty rebate) and from the concessionary fare scheme. The latter provides free travel for people over pensionable age, amongst others. It is controversial in some quarters. The operators see it as government paying the fares of certain passengers and no justification for taking service specification out of their hands.

Bus stations, where they still exist, are largely provided and managed by the public sector under integrated services. The Sunderland Interchange for example is built on the site of Northern's old Park Lane bus station and depot to include the adjacent Metro station.

The Future

Cars and taxis dominate our roads and provide a very flexible form of travel for large parts of the population. But public transport is still essential for many people and, as traffic demands increase, there is a corresponding desire to persuade the travelling public to use greener and healthier options: walking, cycling, railways, and, of course, the bus.

Buses as an alternative form of transport is an economic use of road space and it can therefore contribute to reducing congestion on the roads. It must however compare favourably with the private car in terms of cost, comfort, reliability and, not least, in their extent. This remains a key challenge for the future.

More information on the bus services can be found on the operators' websites.

Thanks to David Marshall, Director of Spatial Synergy Ltd for preparing this article. David's web site can be found at www.spatialsynergy.co.uk.

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