



*Addiction to the car is deep seated with many of us, even before we could walk, driving a toy car on the lounge carpet and graduating to a real one on street as soon after our 17<sup>th</sup> birthday as possible.*



## ***Riding the Bus to NET ZERO***



## *Prologue*

The relentless growth of urban populations, worsening trends in air quality, **climate change** and congestion tells many, but not all, of us that we need to take charge and change the direction of future mobility.

There are three broad tribes with different views.

The **Climate Deniers** who think it's all fine and any issues are simply a big conspiracy, think we can simply muddle on and, maybe, replace the odd diesel or petrol car with an electric one.

*'We'll just wing it and see what happens .....*

The **Electric and Autonomous** fans who get the air quality and **climate change** bit but think that a combination of EV's and AV's will sort it all out and simply wish away the huge congestion dimension.

The third tribe see the car, electric, autonomous or whatever, as simply dominating and destroying our cities and see a better environment emerging from a combination of **ACTIVE TRAVEL** on foot or bike and attractive **MASS TRANSIT** ranging from minibuses to urban metros.

The **Mass Transit** bit will depend pretty heavily on medium to large size **zero emission** vehicles operating on urban streets supported by a degree of rail-based **Mass Transit** and some small feeder vehicles.

For want of a better word, we can call those medium to large size **zero emission** vehicles and the smaller feeder vehicles '**buses**'.

Those buses will play a bigger role post **2050** than buses did pre 1950 but not a lot of thought or planning is currently taking place for the real level of step change required from the bus industry.

A future golden age of the bus is not, in any way, a 'given' and, even then, it will be hugely different to what we have now or had before the car rolled up and trashed the World.

For that golden age to happen, it will need vision and leadership either from within the bus industry or from new age disruptors who'll do it all differently.

Or, maybe, a mixture of both.

If we want that World to happen, we need to be scanning the far horizon now and sowing seeds of change to ensure that very different Bus World stakes its claim to exist.

Right now, the industry frets about driver shortage, right sizing networks post pandemic, **ZERO Emission** transition and debates about governance.

We shouldn't be spending time and energy implementing a retro 1980's governance model for yesterday's buses but be focused on designing a new age of the bus for 2030 and beyond.

***We need to be bold if we are to shine over the next 40 years and do more than tinker with governance and the odd capped fare.***

## Chapter One

### The Big Picture

There are those who believe that all bus operators need do is invest in a **zero-emission** fleet to become entitled to claim the right to be the most significant environmentally sustainable supplier of urban mobility by **2050**.

The World, however, doesn't always reward the 'entitled' and things do not always turn out as expected. Entitlement needs to be backed up by dedication and hard work and there is a wide range of activity required to present that **zero emission** operation in a guise which will truly transform the role of the bus over the next three decades, restoring it to the pre-eminence it enjoyed in urban mobility in the early 1950's.

Right now, that transformation looks unimaginable.

Indeed, I believe the vast majority of the bus industry workforce, including its senior management, don't even have that transformation on their radar, are totally obsessed with the day to day challenges of the here and now and don't have the headspace to invest in the longer term.

Despite the downsides of acute urban congestion, around 70% of urban commuters in the UK remain wedded to sitting in traffic as their preferred option with only around 7% taking the bus.

These figures vary by town and city with some of the larger cities having a lower proportion of car commuting due to the presence of urban rail options but, even then, outside London the car proportion rarely falls below 50% and only in a handful of locations.

Creating cleaner, healthier, liveable towns and cities not polluted and congested by excessive use of single occupancy private cars is transformational and the simplest path to that transformation is positive investment in high quality bus networks.

Delivering that transformation requires a comprehensive plan addressing seven major areas of activity.

## ***1. Investment in the product***

Current bus networks are designed for their current volume and profile of users. They are not geared for growth even for their current demographic let alone the vast majority of commuters whose trip simply would not be possible on the current networks.

There needs to be a massive overhaul in network design and capacity to open bus use up as a truly credible alternative to the car.

That has been the situation for decades prior to the pandemic but, post pandemic, it is now even more the case as services are matched much closer to actual demand with little investment in growth capacity. If you do not actively invest in development capacity, over and above the here and now, you will not see any material growth in demand.

If car users are to be tempted to consider the bus as an alternative, they need to be shown a product which meets their needs. The design, delivery and development of those bus products will take skill, time and, above all, significant financial investment over and above the current substantial commitments to invest in **zero emission** fleet.

## ***2. Investment of financial and political capital in car restraint and bus priority***

Bus networks suitable for delivering major modal shift simply cannot be delivered without bold, positive interventions to constrain car use and develop material bus priority on urban streets, major 'A' roads and motorways.

This also requires financial investment and, more importantly, determined political courage to separate the vast majority of commuters from their car.

One of those situations where **tough love** is required.

There is growing hard evidence worldwide in cities ranging from Helsinki, Paris, Ghent, Amsterdam, Singapore and Barcelona to prove it

can be done but it requires political bravery and technical professionalism to take the car community through the pain barrier.

Once achieved, there is also clear evidence of the social and political resistance melting away as the tough love is repaid with gratitude.

Like all addictions, detoxing the commuter's attachment to the car requires a steely determination. There is no simple soft way.

Politicians simply need to front it up.

With up to 70% of urban land dedicated to cars in one form or another and, on average, a car killing one pedestrian in the UK every day of the year, there is much to be gained even beyond the need to improve air quality and address ***Climate Change***.

### ***3. Investment in Infrastructure***

Delivering a bus user experience of sufficient quality requires substantial investment in supporting infrastructure around good quality stops, enhanced waiting environments, interchange facilities and customer facing information technology.

The '***whole bus system***' needs to scream ***frequency, speed, quality, style and reliability*** to be seen as a superior experience to sitting frustrated in traffic in the car of your choice.

### ***4. Building Alliances***

Buses do not work in isolation.

Bus operators need ongoing continuous co-operation and support from a wide range of allies to deliver a high quality customer experience.

Those allies include local authorities, police, major employers, major retailers, other transport operators, colleges, hospitals, leisure and entertainment venues, chambers of commerce and many, many more including some who are very bespoke to particular geographic markets.

In addition to **tough love** with addicted car commuters, you need a permanent **charm offensive** with essential allies.

To remove friction from commuters' daily bus journeys needs co-operation and input from many other entities and, therefore, those alliances need to be built and nurtured if the bus experience is to be optimised.

This, too, takes time and resource.

### ***5. Fostering an innovative and responsible competitive dynamic***

To date, three Mayoral Combined Authorities – Greater Manchester, Liverpool City Region and West Yorkshire – have published comprehensive 40 year Business Case Assessments of their approach to the delivery of bus services under a Franchising Mechanism through to the mid 2060's.

None of those three Assessments seeks to truly challenge the car dominated mobility which currently prevails in their urban areas and, indeed, the general thrust of all three Assessments is simply that they will manage the decline in bus use better through Franchising than either through the current status quo or an Enhanced Partnership mechanism.

Major consultancy '*group think*' seems to be driving an unrealistic, conservative template around franchising outside London.

It will, therefore, be necessary to revisit bus governance in the context of meeting the UK's obligations to address **Climate Change** and reduce carbon and develop a more appropriate governance approach consistent with these proposals.

All consumer products benefit from innovation and a responsible competitive dynamic and the quality of your daily commute or routine travel will benefit every bit as much from that as your other retail or utility experiences.

More 'fit for purpose' methods for delivering that change than a corrupted version of the 1980's retro proposal of Franchising will be reviewed in detail in subsequent [Chapters](#) on *Governance and Funding*.

## ***6. Engaging marketing, promotion and pricing***

Detailed market research, careful product design, dynamic communication and promotion coupled with competitive pricing are a key part of every other retail experience and bus network operators need to emulate the best to deliver excellent levels of customer satisfaction superior to the experience of enduring congested urban trips by car.

## ***7. An abundant supply of professional, engaged front line staff***

To deliver consistently to the scale and standards necessary requires an abundant supply of well trained, motivated drivers, supervisors and front line customer facing support staff both delivering the actual service and providing proactive customer support.

In a developed economy with high employment, that is challenging to deliver unless there is an open channel of international labour to meet any natural shortages.

The history of bus operation in the developed World shows that has always been the case and, with a massive expansion in demand targeted, a substantial labour pool is essential.

The ultimate imperative in facilitating this will lie with government in developing suitable immigration policies.

It is possible that, as time passes, a degree of bus operation can be delivered by autonomous vehicles but this will only apply to a very restricted proportion of the market for specialist shuttles in restricted areas.



Even by 2060, the World will not be ready for high capacity, seriously expensive buses to be out on their own on high frequency urban and interurban routes.

Where does this lead?

Bus networks where the operators can justly be proud of each and every product delivering -

**Frequency, speed, proximity, quality, style, simplicity and reliability backed up by long term stable, sustainable investment.**

When should it start?

Delivering this degree of change in perception and experience will be an enormous challenge for both operators and government, both local and national, and will not come overnight.

However, to deliver it coincident with a **zero emission** fleet by the mid 2030's relies on setting out right now on a mission to sow the seeds of a consistent direction of travel.

The key question to ask is –

*'If **Net Zero** requires a material reduction in car use and **Net Zero** simply has to be delivered, what better plan is there on the table?'*

## Chapter Two

### Network Development

Once any Local Authority decides it is time to transition from a congested, car dominated environment to the cleaner, healthier, safer, liveable world of **Active Travel** and clean **Mass Transit**, it will be necessary to fundamentally transform the local bus offer to be fit for that purpose.

Today's bus networks are built around the dominance of the car and play only a residual bit part in urban mobility which fundamentally impacts on the scale, shape and quality of the network.

A significant proportion of the current bus offer across the UK presents as *suboptimal* with the product compromised by traffic congestion, inherent unreliability, poor infrastructure and tight financial constraints on the ability to invest in quality and customer service. Aside from a limited group of core high frequency routes, timetables can be unattractive and simply not fit for purpose.

Where excessive car use is tamed, it is essential, and perfectly possible, to deliver a transformed bus offer of which operators can truly be proud and customers will truly enjoy.

That degree of radical transition cannot simply be switched on overnight and will need to be built up over time in a staged transition from the status quo to a bold new World.

We'll come to that transition later but let's first start by understanding the 7 core components of those transformed networks uninhibited by the dominance of the private car and the congested streets it creates.

#### **1. Current Core Routes**

The current limited volume of core routes in each town or city can be robustly reinforced in terms of speed, frequency, directness and span of operation, including through the night, and at a lower price point with higher quality if freed from the costs of traffic congestion.

They simply get better and, potentially, more direct as additional demand allows some routes to be split in two, to expand catchment area, with each still able to deliver 'turn up and go' frequencies of at least 6 buses per hour.

Confront the tyranny of the car and this is the first easy win.

Urban traffic congestion slows down buses and drives up cost due to the requirement to employ more drivers and buy more buses to deliver any given timetable. The slow journey times deter passengers as, also, do the higher fares operators need to charge to cover the higher costs.

Removing the congestion speeds up buses, reduces costs and fares and leads to passenger growth instead of decline.

Like the sun emerging after a near 50 year thunderstorm.

## ***2. Current Suboptimal Routes***

The suboptimal, compromised peripheral low frequency routes in the major cities, and, in the case of smaller towns - the entire network - simply will not be fit for a place in the new bolder future for the bus even when freed from the tyranny of the car.

With modal shift from car, the relatively stronger ones will effectively upgrade to become part of the core network with higher 'turn up and go' frequencies, a wider span of operation and, again, at a lower price point with higher quality.

Where that does not make sense, some kind of Demand Responsive Transport (DRT) solution will be the most likely way to meet the absolute need for a bus offer which delivers on *frequency, speed, proximity, quality, style, simplicity and reliability* even in areas of relatively low demand.

It may also be that, in the daytime, 'turn up and go' frequencies will work but give way to a DRT option in the evenings, night and early mornings.

Those two categories can simply evolve and blossom in the more benevolent operating environment and continue to grow naturally.

### ***3. Medium Distance Commuter Express***

The current levels of traffic congestion, particularly in cities like Manchester, Leeds, Bristol, Cambridge, Cardiff and Edinburgh are driven by cars from a much wider catchment area than the city boundaries so the bus and rail mass transit offer needs to provide a genuine, high quality alternative to medium distance car commuting.

In some cases, the alternative may be the reinforcement of frequency and span of operation on the local rail network. Otherwise, the solution lies in developing medium distance commuter express bus networks serving both the centres of major cities or mobility hubs and interchanges on the periphery to connect for destinations outside the core of the city.

These would be two separate sets of services – one arrowed direct to the city centre and the other to the mobility hubs and interchanges on the periphery.

The urban bus network will need to recognise the needs of non-city centre demand attractors including schools and colleges, hospitals, leisure facilities, tourist attractions and retail centres.

A much more diverse network than either radials or a mix of radials and orbitals is required. A bespoke, curated network to uniquely suit each town or city designed locally and evolving with the community.

This is similar to a solution currently being adopted in Paris with 25 new commuter express bus routes being launched alongside a major expansion of the Paris Metro with 68 new stations and three new RER lines orbiting the city to supplement the core hub and spoke lines of the Metro.

Unlike the previous two categories, this will involve significant upfront investment to underpin the growth period of the new Commuter Express routes. It could take up to 3 – 6 years for them to reach revenue

maturity and thrive commercially as the community adapts to new travel habits and patterns.

More will be said on this in *Chapter 9* on *Funding*.

#### ***4. Feeder Networks***

Shorter internal feeder networks will be required to provide connections between the city centre and the peripheral mobility hubs, interchanges and any rail or tram stations and significant demand attractors located outside the town or city centre.

Some of this activity may also be delivered by DRT or, where physically appropriate segregation is possible, autonomous shuttles.

#### ***5. Interurban Express Networks***

There will also be a growing market for longer distance interurban express bus networks providing both inter city travel and commuter connections between towns and cities, especially those without adequate rail connections.

However, even those with rail connections may still require parallel express bus operations to optimise customer accessibility.

They will all be fully integrated with the commuter and urban networks of each of the towns and cities they serve in terms of service integration, payment, ticketing and pricing and customer service support.

As with new Commuter Express routes, they will require upfront investment and financial support as they grow to maturity.

#### ***6. The Night Economy***

If we want the community to adopt a car free lifestyle, the bus networks will all need to recognise the local night economy creating significant demands from both workers and other consumers.

Society has changed dramatically since the early 1950's, when the bus was last a major urban mobility player, so the bus renaissance will look fundamentally different to that previous generation and meet the needs of a more prosperous, dynamic 24 hour economy.

Urban and commuter bus services simply cannot switch off at midnight and switch back on at 5am. They will need to be present 24/7/365 as mobility is an essential service. Frequencies may vary by time of day and night but the ability to travel by bus must *always* be there in one form or another.

### ***7. Private, premium or bespoke shuttles***

In addition to the core open public offering, if we are to truly replace the car in the urban environment, there needs to be a 'safety valve' where common groups of people travelling to common destinations can procure or supply their own private, premium or bespoke routes.

This will relate, for example, to educational facilities, workplaces, sports and entertainment venues and other similar destinations.

Those operations may be more sporadic and timetabled in line with the needs of the groups, perhaps without general public access and restricted to employees, customers or people prepared to pay a premium for additional quality or facilities.

So long as those operations are delivered reputably and carry material numbers of people in an environmentally sustainable way, they should have access to the common bus infrastructure and facilities including bus lanes, bus stations and technology.

So, if the standard network doesn't meet your needs, you can, as a collective, design, provide and fund your own route.

Your route, your way.

Individuality and choice is one of the factors driving car use and there should be no reason for those who wish to exercise individuality and choice not to do so - so long as it is in a ***Mass Transit*** format and

follows the core **Mass Transit** safety rules imposed with as light a touch as possible.

Commuting in **2050** should not resemble some kind of hair shirted soviet collective activity – it should be desirable, comfortable, fashionable and convenient and room exist for innovation, initiative, flair and variety.

If you want to pay a little bit more or make a little bit of effort to make it more stylish and fun, the option always needs to be there to do that.

Just don't try to do it in a single occupancy car or, indeed, a car of any sort.

Design yourself a bus and fill it up with your friends, colleagues or, simply, people who share your passion for ..... whatever!

## **Transition**

Aside from the political question of how a local authority initiates the move away from car dependency, how does the bus industry, itself, sow the seeds of a bus renaissance?

If we believe in a world of **Active Travel and Mass Transit First** edging the private car out of its current comfort zone dominating our towns and cities, either stationary in traffic or stationary parked, we need to deliver tangible evidence of what buses really can do given the necessary road space, infrastructure and investment by both the public and private sector.

If we look around the UK today, there are very, very few bus routes, if any, which we could hold up as shining lights of perfection.

Routes which deliver all of **frequency, speed, proximity, quality, style, simplicity, reliability, value and 'always on!'**

**Routes which can tick these 28 boxes –**

*At least 6 departures per hour between 5am and 1am daily*

*At least 2 departures per hour between 1am and 5am daily*

***Zero emission fleet***

*Separate doors for boarding and alighting to optimise speed.*

*No driver transactions to optimise speed.*

*Comprehensive bus priority measures along the full length of the route 24 hours per day to optimise speed.*

*Operating schedule customised to the time of day, day of week, season of year built using AI.*

*Ability to pay contactless by credit card, debit card, smartcard, phone or simply facial recognition.*

*Supported by 24 hour customer service online, by chat and by phone.*

*On street supervision and customer support 24 hours per day.*

*Shelter, seating and accurate, live real time arrival tracking at every stop.*

*CCTV on bus and at stops with emergency help buttons triggering live feeds to control room.*

*Light touch, zero irritation, audio visual next stop and essential information announcements.*

*Clear journey tracking by app with personal stop alert.*

*App showing walking route to final destination.*

*Free wifi.*

*No quibble money back guarantee if journey is unsatisfactory.*

*QR codes for customer satisfaction survey at every seat.*



*Operating depot fully staffed with engineering and driving staff and a waiting list of potential employees.*

*Bus litter picked at every terminal.*

*All internal information clean, clear and accurate.*

*Clear customer contact information provided on bus and at all stops.*

*Paper timetables and fares information freely available on bus.*

*Up to date punctuality and reliability data published on bus.*

*Up to date customer satisfaction score published on bus.*

*Up to date staff satisfaction score published on bus.*

*Found Property digitally tracked at first terminal point after being found with data immediately available to the Customer Call Centre.*

*Manned replacement bus on standby at each depot 24/7*

Apart from the one futuristic issue underlined, none of those issues are rocket science and all can be delivered now. Every single one of them will enhance the customer experience and customer satisfaction. If you are asking me to give up the security of my private car and trust my mobility to a third party, I would expect a consistently high standard and quality of delivery.

If we want the bus to become the pre-eminent means of urban mobility of the future, we need to start there and accept this will be the minimum acceptable in the long run.

If every major operator identified its strongest current bus route and brought it up to this standard, that would be a solid step forward in showing what bus travel can really be like.

***And a clear statement of intent!***

When you're staking a claim for the bus, with its current, understandably tarnished image and reputation, to be the premium mode of urban mobility, you need to put your credentials out front sooner rather than later as you have a ***lot of persuading to do!***

That takes more than fine words – it needs hard, useable, demonstrable evidence and, any operator afraid to do that should simply opt out of the game as the next few years is ***'now or never crunch time!'***

We then move forward, step by step, with Local Transport Authorities to move toward cleaner, liveable cities freed from the tyranny of the car.

## ***Culture***

Over the last 8 decades, the bus industry has learned to '*know its place*' in the mobility hierarchy and developed a culture to fit delivering '*reasonable services in the circumstances*' but, if it is to find a bold new role, it needs to up its game substantially and set and deliver much higher standards of customer service and consistency.

Moving from a 7% player in the mobility market to a potential 70% player opens up huge demand and revenue opportunities but they will only become a reality if the industry begins to produce a suitable end product.

It will be covered further in [Chapters 9](#) and [10](#) on [Funding and Governance](#) for that new World but, of relevance to network design, we should acknowledge one key point here.

There are a number of existing high quality iconic routes operating, almost at random, in various parts of the UK delivered by several operators. They are all the product of someone, somewhere at some time being prepared to work on them and invest in them.

They are significant by being by far the exception and not the rule.

However, they demonstrate, to a degree, what **can** be done – but now the UK bus industry needs to think hard about making something even better than them the norm and not the exception if it is to earn the trust of local authorities brave enough to address the tyranny of the car.

In no particular order, and not the full list by any means, think –

*The 36 between Ripon, Harrogate and Leeds*

*The Oxford Tube between London and Oxford*

*The 900 between Glasgow and Edinburgh*

*Citylink Air between Glasgow and Edinburgh Airport*

*The Airline between Oxford and Heathrow and Gatwick Airports*

### ***The Product Challenge?***

If anyone thinks the current bus networks will go anywhere near persuading existing car commuters to embrace the bus by **2050**, they are seriously deluded.

We have already referred to 'political courage' in *Chapter 1*.

Even the most ruthless, hardened, dictatorship would accept the need to cast a significant number of sweeteners into the mix!

Yes, **Mass Transit** may be the rational, environmental, ethical, moral choice for us all but we need to get real about how that works and ensure the product, itself, is compelling in its own right.

We know this will all cost money and we'll come to that in *Chapter 9* on *Funding*.

## Chapter Three

### Pricing

#### Context

Bus networks should be perceived and managed as both an essential part of the social and economic infrastructure of the community and a retail consumer product with both roles having a significant impact on how they should be priced.

People are not motivated to invest in a car because it is cheaper than travelling by bus but by a host of factors related to convenience, reliability, status, fashion, style and utility.

Where bus travel is priced at zero, either for everyone or for specific categories of people, you then discover that you **can't even give it away to many people** so the reality is that bus fares are not the cause of acute urban traffic congestion and tinkering with price will not generate transformational modal shift in urban areas.

Indeed, providing free travel severely damages operators' ability to constructively and positively promote bus use through pricing and marketing strategies and undermines essential revenue streams required to fund investment in the highest possible quality of bus services.

Additionally, over the last decade government policy has tilted the cost comparison between commuting by bus and private car in favour of the car with bus fares rising as motoring costs have been falling.

That change has been driven by three factors. Firstly, the freezing of fuel duty has held down the cost of car commuting whilst, secondly, austerity cuts to local authority budgets have hit hard on buses as the single biggest local authority category of discretionary spend and not a mandatory duty. Thirdly, labour costs generally rise above CPI and labour is the single biggest cost in delivering bus services whilst car drivers come free for most of the population as they do it themselves!

Consequently, if local Mobility Policy moves along the lines set out in [Chapter 1](#), and Networks develop along the lines set out in [Chapter 2](#), pricing is going to have to change as radically as networks.

Pricing bus travel for a major modal shift from car will require a whole different mindset and psychology than the current traditional approach.

To the extent that bus networks are a retail consumer product, where demand can be influenced through detailed product design, consumer marketing and price, there will be a need to develop more sophisticated consumer pricing strategies to optimise both demand and revenue.

To the extent that they are an essential part of the social and economic infrastructure of the community, local authorities will also have their own social and economic objectives for the bus which may also require the use of price as a policy lever.

The major modal shift targeted by the policies set out in [Chapter 1](#) will heavily reduce the levels of both national and local government expenditure tied up in feeding our current car addiction with reductions in the cost of roads, parking provision and other infrastructure and in costs caused by poor urban air quality, car crashes, deaths and ill health. It would be appropriate to divert a proportion of the savings from killing our collective *'car habit'* to either global bus support or specific support for particular categories of bus passenger.

In the Future Mobility World, bus services should be funded by a combination of customer fares and government grant.

This [Chapter](#) deals with the consumer pricing issues and the government financial support element will be dealt with more fully in [Chapter 9](#) on [Funding](#).

## **History**

In the previous heyday of the bus, up until the 1950's, bus fares were predominantly driven simply by distance travelled by individual customers with some commercial discounts for the young and the elderly.

The industry cost structure was predominantly distance based and, therefore, pricing and costs were part of the same equation.

That relationship has been disrupted a little and become more dynamic in the 40 years since deregulation but only in a modest way.

In the period between 2014 and 2017, I made a series of presentations to conferences stating that *'Ticketing, Pricing and Payment were the fastest changing elements of the UK bus industry.'*

On more mature reflection today, I would say it was only ticketing and payment which were seriously disrupted by Oyster, Smartcard, Contactless and Apps right across the board but prices just continued to go up annually, much like always, and, whilst there were some limited changes to pricing structures, the real pricing revolution has yet to come and will be driven by the need to deliver the mobility transformation set out in [Chapter 1](#).

More detail on the future of Payment and Ticketing technology will be covered in [Chapter 6](#) on [Technology](#) but, for now, we will focus on the consumer pricing revolution component of the bus renaissance.

## **Political Pricing Today**

Whilst the 1985 Transport Act was designed to encourage a commercial entrepreneurial spirit in the bus industry, it is quite ironic that the biggest single intervention on commercial pricing was taken by the UK, Welsh and Scottish Governments to mandate free travel to a significant proportion of the customer base!

Before we look at what we can expect to happen with direct consumer pricing, we need to understand the implications of those unilateral political decisions taken by the Welsh, Scottish and UK Governments in the 2000's to commandeer a significant proportion of bus operators product inventory and give it away free *'Soviet style'* to certain categories of passenger.

The majority of passengers travelling on buses in Wales are either elderly or disabled and qualify for free travel theoretically funded by the Welsh Government.

In Scotland, everyone over the age of 60 and under the age of 22, can travel free on buses, again, theoretically, funded by the Scottish Government.

Much less generous schemes apply in England, outside London, with free bus travel after 9.30am Monday to Friday and all day Saturday and Sunday available to those of State Pension Age, currently 66+ and some categories of the disabled.

Those schemes were introduced based upon budget calculations that they were affordable at the time and for the foreseeable future thereafter. However, the bus industry is subject to above inflation cost increases driven by it being a labour intensive business and, therefore, the cost of those schemes has since grown exponentially in cash terms.

The impact of inflation on operating costs is a real cash increase whereas Free + Inflation remains Free and this has put considerable strain on affordability of reimbursement arrangements for the public sector leading to implicit pressure for those schemes to be cross subsidised either by higher fares for the rest of the customer base or lower salaries for staff working in the bus industry.

On the face of it, each of these schemes is funded by government on a '*no better, no worse off*' basis for operators but the realities of public sector austerity and the state of local government finance simply puts pressure on operators to accept the best deal they can get and adapt the rest of their budgets to suit.

If you then pursue an **Active Travel and Mass Transit First** mobility solution, the significant proportion of the population who currently spurn the free scheme and simply drive their own car regardless of the cost, will inevitably become an additional financial burden on the public sector due to the much bigger, better more attractive bus networks which will emerge.

It is fair to say that the free travel schemes for the elderly are purely a matter of social, as opposed to environmental or transport, policy, given the number of the elderly who choose to carry on driving their own car at their own expense than take advantage of a free bus pass.

Car use only truly falls as a result of targeted measures of physical restraint and, therefore, free travel is not a useful lever to deliver modal shift and reduce the damage done to urban environments by excessive car use.

If we are to follow the kind of urban mobility policy set out in [Chapter 1](#), we need to fundamentally revisit the value of the current use of free bus passes particularly in light of how much it will cost the public sector in the context of future mass bus use.

## **Political Pricing in a Car Restrained Environment**

It is a perfectly legitimate objective for governments to seek to provide social benefits to certain sections of the population.

It is, however, questionable, whether providing free bus passes to all of the currently entitled groups would either be affordable or provide value for money in an environment where many more people in those categories will travel by bus as a result of government environmental policy to restrict inappropriate car use in urban areas.

It would certainly be a barrier to delivering the environmental benefits if free travel for certain sections of the population were to be cross subsidised through either higher fares for the rest of the population or lower pay for bus operator staff.

The most manageable solution would be to replace 'free' with a 'discounted fare' coupled with a carefully calibrated operator reimbursement model to ensure that operators can afford the levels of investment required to deliver services of the quality set out in [Chapter 2](#).



Cash income from the discounted fares would then at least keep pace with inflation as opposed to the ever-increasing burden on a cash starved public sector of free schemes.

In political transitional terms, it would also be possible simply to cease issuing new free passes but allowing those currently entitled to retain their current benefit, phasing out free travel gradually over time.

In the absence of free schemes, it is also likely that there may be a commercial logic to introduce promotional pricing for the young and elderly as part of a wider restructuring of pricing policy in the new, high demand world of the bus.

## **Cultural and Legacy Issues**

Traditionally, bus pricing has been focused on distance based single prices for individual tickets plus time limited or open ended discounted return tickets, zonal day, weekly, monthly, quarterly or annual tickets plus commercial discounts for children and, prior to the evolution of government concessions, the elderly.

Proper commercial consumer pricing, however, is still inhibited by a series of cultural legacy issues.

For example, as single fares are usually the base from which concessionary reimbursement is calculated, there is a clear, but perverse, incentive to keep them as high as possible to drive up concessionary reimbursement even though it may be deterring adult single patronage.

This simply reinforces 'car addiction' amongst the core adult population between 22 and 59.

Similarly, in many cases, the terms and conditions behind bundles of day tickets sold on Apps have ridiculously short time periods for their use rendering them relatively unattractive due to the high risk of them expiring without refund before they can be used. This has been driven by them being used by customers who, previously, would have bought a weekly ticket and operators seeking to minimise the loss of that revenue.

The proposals set out in *Chapters 1 and 2* require a completely fresh, forward-looking approach to commercial pricing based on optimising demand and revenue for the future rather than constantly looking in the rear view mirror back to the past.

## **Consumer Pricing in a World of Car Restraint**

If the kind of networks set out in *Chapter 2* were to develop, the substantially larger bus market will provide huge scope for demand and revenue to be maximised by much more sophisticated pricing strategies than we have seen to date.

There will be three powerful forces at play incentivising innovation in pricing.

- *Ongoing Development of Payment and Ticketing Technology.*
- *A transformational all-round improvement in product quality with the removal of acute traffic congestion and the ability to provide better frequencies, much improved reliability and proper levels of customer service.*
- *A major change in the shape and scale of the market as the overwhelmingly dominant role of the car in urban travel is scaled back and operators find themselves with a growing, dynamic market which can be incrementally developed through dynamic pricing innovation.*

### *Ongoing Development in Payment and Ticketing Technology*

Payment and Ticketing systems have been revolutionised over the last decade through developments in technology which will only continue to accelerate over the next twenty years. It would not be unreasonable to assume that payment and ticketing technology should be able to evolve in such a way that any kind of pricing product would be technically feasible to deliver.

Account based ticketing could easily evolve in such a way that a customer will be able to board a bus without any driver interaction or, indeed, any need to interact with a validator or present a card or phone.

The customer might only need to be carrying a token in some form on their person in a switched-on mode which can be read by the payment and ticketing technology automatically on the bus.

That would allow for customised pricing for each individual creating the ability to travel seamlessly on *Mass Transit* - buses, trams and trains- , benefitting from their own bespoke pricing offer charged to an online account.

Alternatively, if preferred, a customer could present a token to a validator, as they board and as they alight, with payment either taken from a wallet encompassed in the token or from an associated bank or card account again based on their own bespoke pricing profile.

In the same way as a mobile phone customer can purchase a data package either from a retailer or online customised to their own profile of needs, bus customers could visit high street retail outlets or operator, transport authority or third party retailer websites to sign up for a package customised to their needs.

Your bus mobility, your way.

The sheer increase in market scale will make bus retailing a major customer service business in its own right with the transactional element of it taken away from the bus stop or the bus door and any interaction with the driver or, indeed, in many cases, even with a validator feeding even more demand with a simple, seamless, friction free experience at the point of travel.

How refreshing and transformational would that be?

### *New forms of pricing*

The bespoke element of it will also address the expectation of former car commuters that the cost of taking friends or family on a trip to be no more expensive than if they were travelling together by car.

Allowing customers to purchase joint tickets with up to 4 others, for example, at much more competitive prices than multiples of the single fare.

The methodology could resemble current Rail Cards whereby you acquire *2, 3, 4 or 5 Together Travel* at a substantial discount. Technology would deal with the profiles of the individuals involved recognising them as a singly priced group no matter whether they travel as a 2, 3, 4 or 5.

If supermarket checkouts today can recognise that you have bought 3 oranges and have a loyalty card and automatically adjust the price so, too, could bus validator technology in 20 years time recognise a group boarding and alighting together and match the charge to the appropriate *Group Discount Card*.

That opens up a whole new world of payment and pricing options designed to make bus travel much better value and customer friendly.

The sheer volumes, load factors and faster operating speeds of the new environment can transform the pricing equations for customers whilst being sustainable for operators.

The dynamism around pricing can also underpin special offers at quiet times of day, quiet days of the week or different seasons of the year.

Simple core standard fares would exist in any town or city but customers would also benefit from the kind of discounts set out plus lower fares on the busier routes where the lower fares will generate greater revenue from the higher demand characteristics of the route.

A win for the operator and the customer.

The friction associated with having to make different arrangements when travelling in a different town or city could be removed from the customer and accommodated by the bus operators sharing a UK wide transactional back office which would accept the customer onto any urban bus in the country and allocate the journeys made in each town

or city to that town or city's revenue pool for distribution to local operators.

This would open up opportunities, for example, for a customer based in Leeds spending a day in Manchester using one daily or weekly cap for their urban journeys.

If you are in Manchester for the day, you won't be using your account in Leeds at the same time so why should you pay any extra so long as the operator you travel with receives a revenue payment?

This would also allow integration of ticketing and payment for interurban express coach services and commuter express services with urban networks and feeder services.

Payment for an intercity or commuter journey could be purchased bundled with urban travel at either or both of the origin and destination town or city.

Put simply, with bigger customer volumes, much better-quality services and transformational technology comes a wholly different world of pricing which can further feed the popularity of the bus and the level of demand.

Having a simple, universal ticketing back office and standard processes removes the mystique behind bus payment and pricing which have always been a barrier to casual use.

The necessary research on this option was done by the industry back in 2016 and established as being both feasible and cost effective.

### *New forms of retailing*

With retailing moving entirely off bus and the substantial ramp up in customer volumes, there is room for many more retailing channels including partnerships with third parties bundling bus packages with other retail offers such as mobile phone operators, satellite tv and streaming platforms, utilities, rail retail outlets etc which could all use their existing channels and customer databases to expand their retail activities and the bus audience in different ways.

Additionally, it should be possible to allow entertainment venues, supermarkets and other retailers to bundle bus travel to and from their stores and events through the provision of a token to customers included in their own pricing.

There are plenty of tunes to be played around those themes to add volume to the bus market and make it increasingly easy for customers to pay for their bus travel in the package which best meets their needs.

Mutual loyalty and discount schemes all open up in those scenarios.

*Dynamic, competitive innovation vs simplicity and equity?*

This issue is relevant here but will also come up in the context of [Chapter 9](#) on *Funding* and [Chapter 10](#) on *Governance*.

There is a clear case that current bus demand is depressed by the mystique and complexity around pricing and that clear, simple fares will lead to greater levels of price awareness and willingness to travel by bus.

Certainly, when non bus users are surveyed as to their perception of the likely cost of bus travel, they virtually always substantially overestimate it which reinforces that point.

That argues in favour of making bus fares clear, simple, fixed and flat which is slowly becoming the political preference.

However, given the technologies now available for more dynamic pricing, that simplicity could ultimately prove suboptimal for **both** the customer and the operator.

The alternative solution is to transform the whole bus environment, including much greater transparency around payment and ticketing technology and the whole bus retail experience, paving the way to use price, as other consumer markets do, as a key component of efficiently managing demand and providing value.

If price is detached from both efficiency and value, it can lead to poorer economic outcomes for both customers and operators.

The nature of demand on certain urban routes is such that costs per customer journey are **much** cheaper than on others and, therefore, that value ought to be passed on to customers which, in turn, may generate even greater demand and efficiency creating a positive spiral of patronage growth and a substantial positive contribution to the economy and the development of the network.

At the opposite end of the spectrum, where the core nature of demand is flatter, fares still need to represent efficiency and value but around a different base point.

That does conflict with an assumption of equity where the cost of travel per km on one route will be different from another.

However, the net effect of balancing those price points by cross subsidy leads to an overall reduction in bus use and demand which reflects negatively on the economy and customers.

We need to keep some competitive dynamic in bus networks to encourage innovation and deliver value in the same way as 'open access' rail services do on the intercity rail network where the strongest demand exists on routes with an 'open access' provision.

Simple, equitable fares on franchised networks may appear attractive but the ultimate reality is that those fares will be set by a public sector monopoly in a World where public funding is under acute pressure due to the many other urgent demands on taxpayer funding.

That is not good long term news for bus customers.

Compare what used to happen in the telecoms market of the 1980's under a British Telecommunications monopoly!

How to create and govern that competitive dynamic will be addressed in [Chapter 10 on Governance](#).

*Finally .....*

The most exciting part about pricing in the car restricted urban environment are the opportunities for much more innovative pricing strategies which will, inevitably, emerge as operators and retailers properly explore the psychological dynamics of the whole issue.



## **Chapter Four**

### **Vehicles**

If we are to create an **Active Travel and Mass Transit First** urban environment as set out in *Chapters 1 and 2*, it will have major implications for the volume, type and design of the vehicles deployed.

That change can't simply be implemented overnight.

It will have to evolve gradually but the sooner that evolution commences, the smoother the process will be.

In *Chapter 2* on *Network Development*, there is a fundamental recommendation that operators should seek to deliver at least one new flagship urban operation demonstrating the transformation in service quality that is possible. Those flagship operations will require vehicles designed for that purpose so we need to be looking right now at how they can be designed, built and procured.

We need to engage manufacturers in that process and enable their contribution to an **Active Travel and Mass Transit First** urban environment.

There are 7 broad areas where vehicles will require to evolve relating to **Operating Speed, Passenger Capacity, Fashion, Style and Quality, Environmental Impact, Autonomy, Digital Connectivity and Entertainment, and Service Type.**

#### **Operating Speed**

End to end journey speed will be a critical selling point for buses if they are to supplant the car as the major means of mobility in towns and cities.

UK bus operations have been noticeably slowed down both by the relentless growth in traffic congestion since the 1960's and the self-inflicted conversion to One Person Operation which took place in the 1970's and 1980's.

In addition to bus priority measures delivered by local highway authorities, operators, themselves, also need to take responsibility for ensuring that every other aspect of their operation is designed to make passenger journeys as quick and smooth as possible.

The tradition, since the 1970's, has been for virtually every bus operating outside London to have only one door requiring passengers wishing to board having to wait until passengers wishing to alight have done so and then also stopping to interact either with the driver for payment or to touch their card on a validator under observation of the driver.

Those processes add delay at every stop which, cumulatively, adds up to a material delay for each passenger and additional operating cost which has an adverse knock on effect both on patronage levels and fares.

Most urban buses around the World do not suffer from those problems as they have at least two doors with passengers able to board immediately the bus stops whilst passengers alighting can do so simultaneously from the other door.

There is no good excuse for UK operators slavishly sticking with single door vehicles impacting negatively on the customer product when most of the rest of the World have safely adopted multiple door operation.

We need, therefore, to rapidly pivot to all urban buses having multiple doors and operating practices which remove the need to interact with the driver on boarding and parallel adjustments to bus stop infrastructure to suit.

No excuses!

Also, we should be encouraging manufacturers to optimise speeds of acceleration and deceleration without compromising passenger comfort and safety. Getting every ounce of benefit out of the smoother ride arising from the **zero emission** conversion.

Quite simply, this all needs to happen if we are serious about the bus being the foremost means of commuting in urban areas.

## ***Passenger Capacity***

The proposals set out in *Chapters 1 and 2* will see a dramatic increase in the volume of bus use in urban areas and, particularly in the major cities, substantial increases in demand on core urban routes requiring much higher individual bus capacities.

That will most easily be achieved, whilst maintaining the critical need for speed, through the deployment of articulated 18m and, potentially, bi-articulated 24m single decks where suitable adjustments to highways, street furniture and bus lanes are possible.

Following 18m articulated buses in London being '*banished by Boris*', the only major front-line use of this fleet type is in Belfast but, as our current Prime Minister has recently reminded us, Northern Ireland is in both the UK and the EU!

## ***Fashion, style and quality***

We identified in *Chapter 3* that one of the attractions of car commuting is the ability to travel in the car of your choice, so it is essential, if we are to convert people to habitual commuting by bus, those buses need to be materially more fashionable, stylish and high quality so customers enjoy the experience.

The higher travel volumes and load factors should allow a little more investment in the vehicles, themselves, with creativity devoted to ensuring they tick the fashion, style and quality boxes.

Equally importantly, they should always be well presented every day of their lives.

## ***Environmental Impact***

The transition to **zero emission** is a critical requirement whether through battery electric, hydrogen or opportunity charging to be both kind to the environment and also to customers through a quieter, smoother ride.

## ***Autonomy***

There will clearly be a role for autonomous bus technology in at least four forms.

Firstly, the use of autonomous Pods for relatively short feeder shuttles where segregated alignments can be made available.

Secondly, in large depots in major cities, simply using autonomous technology on the fleet within the depot environment for parking, shunting, cleaning and charging may provide efficiency gains and optimise staffing requirements.

Thirdly, where fully segregated infrastructure can be made available, for high frequency urban routes using similar technology and operational procedures to fully automated driverless Metros.

Fourthly, where there are DRT components in networks, there will be scope to deploy autonomous taxis in appropriate areas where there is a need for some simple ride hailing as opposed to ride sharing to maximize inclusive access to the full network.

## ***Digital Connectivity and Entertainment***

For security, safety, reliability and information, vehicles should have fully working reliable 5G connections powering live cctv, monitoring bus performance and supporting customer information.

Particularly on longer distance commuter and interurban operations, good quality, powerful wifi connections are essential to allow customers to connect devices for both audio and video entertainment purposes. Operators should also provide a library of entertainment stored on a hard drive on the vehicle accessible by Bluetooth connection.

This is an area where the bus can fully outperform the car allowing interactive digital activity which simply would not be available to a car driver.

## ***Service Type***

The Network Development proposals set out in *Chapter 2* refer to urban services, commuter and interurban express services, urban feeders, shuttles and DRT style operations.

There is a need for the nature of vehicles to evolve under every category but the major changes will certainly apply within urban areas with the fleets designed for much faster flowing operation. Some similar concepts will apply to the commuter express and interurban operations which will also require to be designed to minimize dwell time at stops.

The DRT fleets will comprise minibuses, people carriers and, potentially, autonomous taxis where there is a need for some simple ride hailing as opposed to ride sharing to maximize inclusive access to the full network.

### **Evolutions in Operational Practice**

It is well understood that the cost of **zero emission** buses, and the enhancements in vehicle quality set out above, will change both the capital and revenue elements of financing bus fleets.

The more **zero emission** technology advances, it is likely that the ongoing full life ownership costs of the bus fleet will actually decline on a like for like basis, excluding any major investment in the customer on board experience.

As the technology evolves, battery ranges will increase whilst ongoing operational maintenance of a battery powered bus will be significantly less than a diesel equivalent.

Experience with previous generations of trolleybuses implies that the vehicle life may also very well be longer. That, however, needs to be seen in the context of a customer requirement for a fashionable, stylish and high quality travel environment which would call for a frequent refresh of vehicle interiors.

This will all, financially, need to be traded off against vastly different revenue streams.

Additionally, the much-improved operating speeds, from a combination of bus priority measures and reduced stop dwell times, coupled with

utilizing AI driven scheduling systems, will have a beneficial impact in reducing relative fleet size.

## ***Chapter Five***

### ***Infrastructure***

#### ***Can we have a whole new city, please!?***

If we are to pursue the ***Active Travel and Mass Transit First*** policy set out in ***Chapter 1*** to meet the United Kingdom's commitment to ***Net Zero***, it will be necessary for Government to deliver suitable road and highway infrastructure in towns and cities to facilitate the mobility transformation.

#### **Roads and Highways**

For the last 75 years, the UK's towns and cities have been progressively customised to support mass car use as the default commuting and travel mode. The net result of all those cumulative traffic engineering and architectural interventions has been escalating congestion and pollution as car use inevitably grows to inefficiently fill every bit of road space made available.

That includes cars '*moving*' in traffic, cars parked on the street and even arrogantly parked on pavements!

Park your piano on the road or the pavement and you would find yourself in trouble, but a car comes with a built in entitlement to simply be left on the street unless there are specific advertised restrictions.

The police will, helpfully, provide you with free security.

Not so sure they would provide the same service for your piano.

Today it is clear that mass car use is, quite simply, a road to nowhere.

However, reversing 75 years of entitled mindset, design, construction, and investment will not happen overnight but, if it is to happen at all, there needs to be a moment in time when the community collectively decides to design city streets to prioritise the movement of people, not vehicles.

Done well, this can lead to up to 75 cars being replaced on the roads with one bus with room to spare for green spaces, trees, mini parks, chilled out people and, maybe, a community piano.

The philosophy underpinning traffic management across the UK needs to change to prioritise **Active Travel and Mass Transit First** rather than the private car if we are to genuinely improve air quality, cut pollution, congestion, and the myriad of consequent negative effects on health, wellbeing, the economy and the very future of our shared Planet.

As with the required large-scale changes to bus networks outlined in [Chapter 2](#), complementary changes to motorways, highways, roads, and streets to support the move away from the private car will need to evolve over time.

However, where any bus operator is prepared to begin delivering trailblazing **Net Zero** style bus routes now, that initiative will need to be matched by appropriate short-term action from the relevant Highway Authority.

Whilst developing the optimum bespoke **Active Travel and Mass Transit First** street infrastructure will take both time and money, there is plenty of UK and international experience to show that a lot can be achieved, even over a single weekend, by simply closing off certain roads to cars and handing them over exclusively to pedestrians, cyclists, buses, trams and random use by humans, old, young and in between.

There is, therefore, no real excuse for delay once a decision is taken to change direction.

In that sense, the problem is all in the mind and initiating the conversion of road infrastructure to prioritize **Active Travel and Mass Transit First** can be done quite quickly if the will is there.

The biggest short-term challenge will relate to the widescale deployment of multiple door buses to increase operating speed requiring changes to bus stop layouts to ensure sufficient space for boarding and alighting at up to three doors, especially where 18m articulated buses are deployed.



Longer term, core high frequency urban routes can be optimised to improve both speed and directness of journeys through some re-alignment of road layouts.

Additionally, where there are extremely busy, ultra-high frequency urban routes operated with either articulated 18m, or bi-articulated 24m, vehicles, the provision of a safe, physically segregated alignment could allow the use of autonomous buses to deliver even more efficiently.

As the transition progresses, there will be options to look at the delivery of fast busways using both flyovers and tunnels, where appropriate, to ensure that express interurban services do not find themselves slowed down by frequently stopping local urban services.

Once the ***Active Travel and Mass Transit First*** priority philosophy prevails, it will open up more radical bus speed and priority measures.

There is huge potential to make both urban and intercity bus and coach journeys much faster, smoother, and efficient when roads are no longer cluttered with miscellaneous traffic and traffic engineers can be much more imaginative in designing road layouts and using more sophisticated signalling technology informed by live operational data to minimise delays to individual buses.

The critical political decision will produce a series of 'quick wins' but, over time, refocusing the skills of traffic engineers and developments in digital technology will lead to a series of smart measures to continuously improve bus speeds in urban areas.

## **Bus Stations**

With the major increase in the volume of demand, Bus Stations will become a critical component of town, city centre and suburban area infrastructure and will need to be located conveniently, designed to a high standard, and contain a wide range of complementary facilities and services providing added convenience to bus commuting.

In many locations, they will be bigger and more important than rail stations and will need to be stylish and iconic as well as functional to

ensure the bus is presented as an efficient, comfortable and fashionable way to travel.

Their location will need to be convenient for walking to retail and business premises and places of entertainment, well located to match bus route alignments and laid out in such a way that internal bus movements are quick, safe, and efficient.

Blending those priorities will be a challenge and require a whole new set of planning skills.

In addition to providing space for buses, customers, and operational staff, they should also contain key services such as parcel lockers, laundries, convenience stores, shoe repairs, bus retailing, information services, coffee and sandwich shops to allow customers to fit those kinds of transactions easily into their trip to match the current convenience, despite the congestion issues, open to car commuters today.

In addition to digital information, physical wayfinding signage needs to be bold and clear to ensure that customers can move quickly and easily around the Bus Station to find their bus service and other facilities they require to access and also know how to reach significant locations nearby.

## **Mobility Hubs**

Outside of major centres, there needs to be locations where customers can conveniently switch from their core bus service to feeders and shuttles, park their bike or pick up a rental bike or scooter etc to make their whole journey more convenient.

Many of those locations will also justify accommodating some of the other convenience features of Bus Stations.

Some Mobility Hubs, where appropriate, may also make provision for Park and Ride. Ideally, park and ride should be minimised as it encourages car ownership and use which can lead to congestion and air quality issues outside of towns and cities but, where appropriate, it will

generally make sense for them to be an integral component of a Mobility Hub.

## **Bus Stops**

Bus stops throughout networks will need to be of a consistent quality incorporating sufficient road space for multi door vehicles, sufficient waiting space for customers with shelter, seating, accurate real time information, physical timetable displays and good quality identification and branding.

They need to be stylish and iconic reinforcing the bus as the premium mode of mobility in urban areas for all.

Having a solid, regular infrastructure presence right along the line of every route will highlight the permanence and availability of good quality bus mobility.

## **Integration and Interchanges**

Buses and coaches will need to seamlessly integrate with other modes of mobility including taxis, rental cars, trams, and trains wherever they come into proximity with each other.

Depending on the location, they will either be a bigger version of a bus stop or a smaller version of a mobility hub with clear information and signage in respect of the walking route to any connection with accurate real time information on its expected arrival time.

## **Digital Connectivity**

It will be essential that a high standard of digital connectivity is provided throughout all Bus Stations, Mobility Hubs, Bus Stops and Interchanges through 5G Wi-Fi or any future enhanced digital technology to ensure that customers can have convenient access to all the data they require on their journey and their entertainment whilst they wait.

## **Governance and Funding**

Whilst responsibility for the funding and delivery of the Road and Highway infrastructure will clearly lie with either national or local government, the governance and funding of Bus Stations, Mobility Hubs, Bus Stops, Interchanges and Digital Connectivity may very well best be a shared activity between national and local government and operators of mobility modes.

This subject will be addressed in more detail in *Chapter 9* on *Funding* and *Chapter 10* on *Governance*.

Operational Infrastructure will be a matter for Operators to consider, plan and deliver.

### **Operational Infrastructure**

The expansion in the size of bus fleets in towns and cities will require additional depot infrastructure for overnight parking and servicing and maintenance of buses, management, control and staff facilities.

Those needs will evolve slowly over the next two decades but will need to be planned well in advance and delivered to a high standard if the service to customers and wellbeing of staff is to match the quality needed to deliver a mobility experience which will be acceptable to customers who previously commuted by car.

### **Redundant Private Car Infrastructure**

In addition to the new infrastructure required to underpin **Active Travel and Mass Transit First** mobility, there will be implications for a lot of existing infrastructure in UK towns and cities.

Currently, great swathes of land are given over to the storage of cars in urban centres during the 90%+ time in which they are not being used.

This will release both land and buildings for other commercial, community and economic uses which town planners would need to be taking into account.

Additionally, in parallel with the **Active Travel and Mass Transit First** mobility policy, the conversion of those private cars which remain to

**zero emission** technology will render redundant many Filling Stations to be replaced by Electric Charging Infrastructure in very similar timescales.

Our towns and cities will look very different by **2050** as a result but, this time, for the better with the removal of large car parks, much cleaner, healthier air and people able to enjoy walking and cycling around a pleasanter city environment without the noise and congestion caused by incessant traffic.

The transition will take decades to fully deliver but it is essential that, in the same way as bus operators need to be on the front foot in transitioning networks, local authorities will need to be on the front foot, too, in planning and delivering the supporting infrastructure.

There is, therefore, little time to waste!

## Chapter Six

### Technology

When the bus was last the prime mobility mode in the UK in the 1950's, it was, quite simply, a '**zero technology zone**'. The only '*technologies*' in use were mechanical such as diesel combustion engines, manual gearboxes, manual steering, mechanical ticket issuing equipment, no bus doors and a lot of pens, pencils and paper behind the scenes.

The bus was, quite simply, '*of its time*' and that time went into a spiral of decline as the era of mass car use began its inexorable rise until the car began to take over our towns and cities with congestion, pollution, ill health and collisions.

The bus drifted back to become a minority player in the mobility space.

It gradually began to adopt modern technology in the early 80's with the use, in a limited number of larger operations, of computers, to construct bus and crew schedules in a rudimentary way, and ticket issuing equipment began to become electronic generating data in reams and reams of green computer listing paper with basic details of each and every ticket issued.

Reporting packages to make that data useable were abysmal.

Like most other businesses, computers began to aid back office administration on accounting and payroll processes but none of those developments did anything to arrest the decline in bus use and the bus remained in its corner watching the 'progress' of private car commuting.

It was only in the early 2000's that developments in technology showed any signs of making the bus more relevant in the modern world.

Early efforts were made to begin to track buses in real time in service to aid reliability and control and improve customer information. However, the technologies behind them were rudimentary and unreliable and most 'real time' displays on street were either permanently switched off awaiting repair or provided flaky unreliable information.

Computerised scheduling improved slowly year on year but was viewed with caution and suspicion by experienced schedulers who usually felt they could produce better results with a pencil, a rubber and a big sheet of graph paper – which was, in some senses, true apart from the fact that those better-quality results took a long time to produce manually.

By the early 2000's, however, the industry began to feel a true wind of technology driven change.

The growth of the internet, smart phones, Apps and Smart Cards created the technological infrastructure to transform the customer experience and operational efficiency which could make the bus relevant again and fit to consider competing with car commuting.

Cars were a brilliant innovation for fast point to point journeys early on a Sunday morning but their use more widely was plagued by the twin problems of 'traffic' and 'parking' and no matter how much 'government' invested in ever more roads and more car parks, it could never create enough space for people to truly enjoy their own car.

When Harold Macmillan, Prime Minister in the 1950's, told the British population that that they had 'never had it so good' and the man in the street could now afford his own motor car, he didn't realise it was one of those situations which was, simply, too good to be true.

Traffic, parking and pollution weakened the promise of the car age and technology would now bring the tools to allow the bus to slowly claim back its role as the prime mode of urban mobility - reinvented for the digital age.

The first real indicator that the bus had a new future came with Ken Livingstone's bold move to restrict car use in Central London with the Congestion Charge, coupled with a major expansion in bus service provision and the development of 'Oyster' – a simpler, modern way to pay for public transport across the City.

There is absolutely no doubt that the characteristics of London are fundamentally different to the rest of the UK and delivering a bus revolution there was always going to be much simpler than across the rest of the country but the underlying traffic, parking and pollution

dynamics are the same and, therefore, the bus has a pathway to future success and one of the keys to access that pathway is 'technology'.

Bold, smart use of modern digital technology can make bus services across the UK by **2050** as different as an iPhone 15 is to an old 1930's black telephone receiver.

So, what are those technologies and how do they need to develop as a core part of the bus renaissance over the next 30 years?

There are eight distinct areas in which technology can transform the bus experience and ensure it is superior to anything the car can offer. It is essential that the industry today begins to develop a coherent, integrated plan to deliver transformation in seven of those eight areas, and remain alive to the potential of the eighth, to put clear blue water between the current car commuting experience and the offer from a reinvented bus product.

### **Punctual, reliable, quick journeys**

Whilst redesigning our towns and cities to prioritise **Active Travel and Mass Transit First** will remove many of the traffic congestion issues which impact on the speed and reliability of bus services, there are a range of other factors which can also cause variability in journey time by season of the year, day of the week, time of day, weather, levels of demand and many other real World situations.

Traditionally, those have all been dealt with by averaging out their impact into a manageable, but not precise, journey time leading to inefficient deployment of buses and drivers, impacting negatively on cost and fares, and inherent unreliability.

With developments in **Artificial Intelligence, Big Data and Machine Learning**, technology products like **Cityswift's 'Explore'** and **'Evolve'** now allow operators to schedule much more precisely and deliver better levels of punctuality at lower levels of cost. Continued focus on improving, and adding to, those tools will see buses become much more precise, consistent and reliable, significantly improving customer satisfaction and experience.



The old way of estimating an average journey time and winging it on the day to deal with any variations is no longer good enough. The industry needs to embrace those technologies and set itself much higher punctuality and reliability standards aiming for 'perfection' rather than 'good enough'. That is a development which can be pursued right now and improved over time as the technology develops further.

The number of excuses for delivering average bus services are falling by the day and any operator not delivering year on year improvements in reliability and punctuality over the next decade is simply not trying hard enough.

### **Simplified Payment Ticketing and Pricing**

Technology has allowed major strides to be made in simplifying payment and ticketing over the last 20 years but there is much more still to do especially on pricing.

Pricing and payment is still a barrier to growth in bus use and will be an ongoing issue as action is taken politically to substantially reduce car use in urban areas.

There needs to much more clarity and consistency across the UK on how to pay for bus travel, and how pricing works, if we are to demystify using the bus.

Allowing every town or city and every operator to invent their own ticketing 'wheel' isn't facilitating mass transfer of customers from private car to bus.

Innovation, competition and dynamism are important elements of any consumer market and need to be encouraged in the bus market, too, but in a wider environment where ease of use is the prime objective.

That widespread, universal ease of use and understanding is in the interests of every single operator and every single transport authority.

To do that requires a set of core actions –

*All retail transactions with drivers removed from all local urban and commuter bus services.*

*All bus services, without exception, accepting contactless payment by card or phone from all major payment providers without any driver interaction.*

*The ability in all urban areas to automatically open a capped product by touching a card or payment device on a validator on boarding governed by a UK wide set of standard rules.*

*All validators on all bus services recognising a valid travel account held on a customer's contactless card or device.*

*Common branding, rules and procedures across the UK applying to bus pricing and payment.*

This will remove the mystique and friction surrounding bus payment and pricing replacing it with clarity and simplicity giving everyone confidence to catch a bus any time anywhere without wondering how or what to pay.

There should be a transparent, well understood default charge applied to any card or device presented to a validator unless the card or device incorporates a token for a valid travel account which will otherwise take precedence.

This nationally applied protocol will require universal operator and authority agreement upon a whole series of issues which will take time to work through and resolve. It will, however, rip away all sorts of current barriers to bus use whilst still leaving considerable scope for individual operators and authorities to use their initiative and innovate on both pricing and payment.

This will take time to develop hence a need to begin to consider the implications and the pathway to delivery now as it is a critical component of delivering much more universal bus use on the road to **Net Zero**.

We can all think of a million and one reasons why this will be a challenge but none of them will be more powerful than the benefits of this approach to delivering mass bus use.

Wherever you are in the UK, you need to be completely clear that you can board any bus to anywhere and know that your card or payment device is a valid ticket and you will pay a transparent price.

The technology might very well be complex behind the scenes but it will be successfully deliverable if the will is there.

The commercial issues will be many but the prize for the bus industry will be well worth them being resolved if it leads to buses carrying many more people in **2050** than they did in 1950.

### **More efficient fleet maintenance and deployment**

The nature of bus fleets will change dramatically over the next decade as they migrate to **zero emission** as already discussed in *Chapter 4*.

The **zero emission** technology, of itself, will simplify maintenance and, ultimately reduce overall fleet size as maintenance intervals for the simpler drive chain will be extended and battery management will become the bigger issue.

**AI** and **Big Data** will see much more live monitoring of fleet condition and more efficient programming of any maintenance required.

Using **AI** and **Big Data** to optimise bus scheduling will also create circumstances where peak fleet requirement will vary by month of the year allowing annual vehicle inspections to be reprogrammed to the lower demand months and away from the higher demand months.

All of this should lead to a smaller fleet deployed more intensely and reliably.

Technology and data will be the key to those developments which will, ultimately, optimise cost and allow better value pricing.

### **Autonomous bus operation**

The notion that, in the next few decades, we can eliminate the need for bus drivers as the fleet will drive, itself, is clearly simplistic.

Can we imagine a standard urban double deck bus out on the streets of Manchester or Canterbury all on its own in mixed traffic with miscellaneous customers getting on and off seamlessly without incident?

Putting a vehicle of that size and value out on its own in an urban area raises far too many risks and issues, no matter how safer the autonomous driving mechanism, itself, is compared to a human driver.

However, autonomous driving technology does offer potential in three areas.

### *Internal depot movements*

It is already the practice in certain locations for buses to operate autonomously within the confines of a depot for fuelling/charging, cleaning, maintenance and parking.

This will increase the fleet capacity of depot sites, as parking can be more precise, making much better use of scarce driver resource and lead to other efficiencies.

### *Segregated urban shuttles*

Autonomous technology is already in place utilizing small pods or minibuses in suitably segregated areas providing short shuttle movements.

That kind of operation will grow over time.

### *High Frequency Bus Rapid Transit*

It is possible to envisage creating segregated BRT infrastructure, either elevated, underground or simply barriered off, delivering core high frequency urban operations with autonomous 24m bi articulated fleet maximising passenger capacity using similar technology to driverless Metros which are now commonplace around the World.

In those circumstances and at those volumes, supervisory and customer service staff would always be present for security and safety but the vehicles could safely be autonomous at high speeds in close proximity to each other delivering higher frequencies than would be possible with human drivers.

The concept offers major benefits particularly in big cities and would be a cheaper option than rail based metros or trams.

As with many of the other concepts in this document, there is an immediate need for early research to identify suitable potential operations and locations.

## **Marketing**

The future marketing of the bus to a much wider demographic will pose all sorts of new challenges encompassing network and product design, pricing and payment options, customer relationship management, call centres, retail outlets, service information, Apps, websites, bus and infrastructure design, fleet presentation etc where technology will play a part.

The market of the future, if the car is tamed, will be substantially bigger and more diverse requiring a fundamentally different approach to marketing.

It should, ideally, be a competitive consumer one which will see both generic marketing of the concept of bus travel carried out at industry, operator and authority level and competitive marketing by individual operators offering choice to consumers to inspire innovation and growth.

Data and Technology will be essential components of that marketing activity.

## **Safety**

Absolute standards of safety are a non-negotiable requirement for bus and coach operators at all times. Technology, particularly in the areas of data and data analysis, are critical aids to measuring safety and

identifying potential threats and continued investment in safety related technology will be increasingly important as the volume of bus operation and patronage grows exponentially.

## **Revenue Protection**

Moving toward fully digital payment for bus travel with no interaction with the driver is essential if we are to deliver the reliability, punctuality and speed required by customers.

However, removing the interaction with drivers does create risk in terms of fare evasion and revenue protection.

Protecting revenue in those circumstances will require a combination of comprehensive physical checks carried out by dedicated revenue protection personnel on the network with their activities targeted by data analysis to identify areas of vulnerability and risk.

Continued research and investment in automated digital revenue protection tools will be imperative.

## **New Technology Frontiers**

Sometimes described as 'unknown unknowns'!

This document identifies a whole range of areas where we know that investment in technology will enhance the customer experience and quality of future bus operations required if we are to transition from private car mobility to a combination of **Active Travel and Mass Transit First** in all its forms.

Technology has developed rapidly in the bus space since the early 1980's to the point where many current developments could not have been predicted decades ago and there is no doubt that there will be further unexpected technological developments over the next 25 years which will improve bus operations by **2050**.

It is essential to encourage ongoing investment and research in bus related technology and an ongoing openness to change and embrace new technologies as they arise.

We can, however, be quite certain that, by **2050**, there will be game changing technology developments underpinning bus operation that no one has yet conceived of.

Many people formed the view that the bus was dead and buried by the early 1970's and truly superseded by mass access to the car.

We have learned an awful lot about the true implications of mass car addiction since then and also about the potential of the bus as a consumer product.

Today, it is clear that we cannot continue to build our communities around the car and meet our climate obligations, let alone create a pleasant, liveable urban environment.

Simultaneously, technology, in a variety of forms, particularly in respect of **zero emission** propulsion, a sensible approach to autonomous operation, much more precise operational delivery through data and superior pricing and payment technologies will now allow us to build a bus product fit for **2050** and beyond.

Fully exploiting the value of technology, the future of the bus is bright and bold.

## **Chapter Seven**

### **Marketing**

The marketing horizon of UK bus operators is currently constrained by an assumption that the majority mode of mobility is the car and that modal shift only exists at the very margins.

Indeed, we have heard operators clearly state that their ambition is simply to encourage a proportion of car users to commute, say, one day a week by bus and see that as being transformational for their business given the significant differences in gross market share of the two modes.

That, however, isn't going to move the dial in terms of **Net Zero**.

Those marginal shifts won't make a blind bit of difference to our congested polluted streets and the deaths caused by poisonous air and errant car drivers.

Modal shift at the margin will simply see those semi environmentally conscious car commuters free up space in the traffic for more of the hard core car addicted to join the throng.

Our Metro Mayors may also feel that a 50% growth in bus use by 2030 will be transformational but the real target to deliver the UK's commitment to **Net Zero** is around 800% by **2050**.

Might be daunting but bear in mind the car delivered that kind of transformation the other way round half a century ago and we're now living with the unhealthy consequences.

We're not talking fine margins here. We're talking seismic transformation through a laser focus on the prize over the next three decades and need to equip ourselves with serious resources and serious people to lead the way.

The premise set out in *Chapter 1* of an **Active Travel and Mass Transit First mobility** involves a seismic shift in market share.



We have already identified, in *Chapters 1 to 6*, that achieving that transformation requires a fundamentally different long-term approach to the bus business model with significantly enhanced networks, a different approach to pricing and payment, vehicles enhanced by more than simply a conversion to **zero emission**, enhanced infrastructure and more sophisticated use of technology.

We also require a much more radical marketing strategy.

The future marketing challenge is huge and long term.

Over the next 25 years, it should be possible for the bus and car to swap market shares with the bus delivering well in excess of 60% of urban travel and the car down below 20%.

That won't happen overnight.

Indeed it won't even happen over 25 years if we don't change the mindset and ambition right now!

If we believe in the need to deliver **Net Zero**, we need to believe in that market share shift and we need to sow the seeds right now.

It is a multidimensional challenge.

It involves individual operators, and the industry as a whole, actively influencing public policy on urban mobility at both local and national government level.

It involves transforming the positioning and promotion of the bus product at an individual route, network, town and city level.

It will require widespread culture change.

There will be a lot of interesting challenging jobs and careers in a bus industry pursuing this ambition over the next 25 years and the marketing roles will be amongst the most challenging and rewarding.

Making the bus the boss in the mobility world will be an adventure.

## Climate Change and the Environment

***Climate Change and the Environment*** will be at the heart of the marketing message but that message needs to be delivered in the context of a bus offer and image radically different to what has prevailed over the last 50 years.

We do not want people travelling by bus because it is a '*climate obligation*' but because it is a safer, healthier, more efficient, stylish, fashionable and attractive way to get around town.

That requires the delivery of the kind of **Networks** described in **Chapter 2** utilizing the **Vehicles, Pricing, Infrastructure** and **Technology** set out in **Chapters 3 to 6**.

***Climate Change and the Environment*** will be the reasoning behind physical, financial, legal and cultural constraints placed on car use in urban areas by public authorities safe in the knowledge that genuine high-quality alternative means of mobility will be available through a combination of ***Active Travel and Mass Transit First***.

***Climate Change and Environmental*** messaging will, however, be one of several components of bus marketing designed to achieve that major modal shift toward ***Active Travel and Mass Transit First***.

## Goal Setting

Before we set out on a journey of this magnitude, we need to be very clear about the destination and the route.

Every journey begins with a single step and that single step should be motivated by where the last step will take us.

This is not simply a journey about the bus but about the nature of the planet and the nature of our towns and cities.

We cannot, and must not, attempt to go on this journey alone but with allies who also care about our planet, our towns and our cities.

The whole collective needs to have the same vision for the destination and the route to get there.

So right now, we need to take stock of who's getting on the bus with us, how we can work together and agree where we want to get to.

Setting the **Goal** and building the alliances demands that we begin to put the leaders of the marketing team together.

We need to devote resource at local and national level to live and breathe that challenge and, relatively quickly, build a consensus on the **Goal** and how we get there.

Serious food for thought!

We know we have short term business challenges converting current fleets to **zero emission**, securing funding for development, dealing with day-to-day operating hassles around roadworks and stuff and recruiting enough drivers for the here and now but we also need to lift our heads up toward the horizon and prepare for the even greater challenge of transformation to **Net Zero** .... now and not manana!

In the short term, that's not about budgets and money – it's about brain power, brainstorming, building alliances, building consensus around the way to go.

It would be easy to decide now is not the time but with the magnitude of the task, procrastination isn't the smartest move.

There are plenty of allies out there and the sooner we turn those allies into a powerful united coalition with a clear **Goal**, the better.

Then the journey can begin.

Today, however, we're not seeing a lot of evidence that anyone is taking this issue anywhere near as seriously as we should.

We just glibly say that **Net Zero** will require a major modal shift from the car but haven't really begun to think through the logistics.

Time we did.

Choosing our initial allies with whom to set a realistic **Goal** in pilot areas means seeking to work with those people and bodies who recognise the root cause of congestion, poor air quality and poor mobility in our towns and cities.

## **Traffic Management and Control**

We hear a lot of discussion about poor bus services and Bus Service Improvement Plans which is poor messaging.

The real issue in our towns and cities causing sub optimal bus services is the traffic environment in which they have to operate, leading to unreliability, slow operating speeds, reduced demand, rising costs and fares. Quite simply, Bus Services cannot actually improve unless traffic is tamed, managed and controlled in a rational way to optimise the movement of people and not vehicles.

It is by giving buses the space and freedom to do their job which will see them improve and any local authority which believes that it can improve bus services without addressing the issue of traffic is deluding itself.

If we are to start on the journey now of growing the market share of the bus, we need to begin in those areas where government, local and national, are taking the issue of traffic congestion and its contribution to poor air quality and **climate change** seriously.

Cities like Edinburgh, Nottingham, Brighton, Oxford and the whole of Wales are beginning to recognise where the true problem lies, and the bus industry needs to ally with those authorities and work with them on the wider agenda to deliver true change.

We see a different situation in Cambridge and Bristol, for example, where there is handwringing and complaint about the poor quality of public transport but no real recognition of the need to clear the traffic upfront first.

The current Cambridge proposal to implement a public transport levy to fund improved bus services is meaningless without a parallel commitment to address the acute congestion across the breadth of the Combined Authority through a material reduction in car use, dependency and addiction.

We see a similar approach in Greater Manchester of reluctance to confront car use although it is mitigated to a degree by an understanding of the need for some more bus priority. However, we have yet to see what happens when tough choices need to be made on access to scarce road space between cars and **Mass Transit**.

As we move forward and deliver better Modal Shift and better Air Quality through prioritising **Active Travel and Mass Transit First** in the early adopters, we can gradually expand the footprint of the **Active Travel and Mass Transit First** approach across the country.

We should, however, be crystal clear that the marketing activity for the renaissance of the bus begins with winning hearts and minds to the cause of truly managing traffic and fully prioritising **Active Travel and Mass Transit First**.

In that context, pedestrians, cyclists, scooter users, skaters, tram and train users are our friends and allies as they are all likely to use buses, too, to travel in and between towns and cities.

So, the starting point for dramatically expanding bus market share is to embrace the issues of **Climate Change and the Environment**, to work with friends and allies to reprioritise the roles of **Active Travel and Mass Transit First** in our cities at both a local and a national level.

We should not hesitate to place that expansion in an international context using examples from across Western Europe, Ireland, North America, South America, the Middle East, Asia, Australia and New Zealand.

The negative social, economic and environmental impact of excessive car use is now increasingly being recognised across the World and the bus recognised as a positive solution - if delivered well.

## Product

We need then to draw together all of the activities and actions outlined in *Chapters 2 to 6* and this *Chapter 7*, into a compelling customer proposition with a bus product we can all be truly proud of and develop a radically different brand image for **The Bus** for travel within and between our towns and cities.

The brand image needs to be truly inspirational and compelling and sold consistently well across the country as more and more areas harmonise the work of local authorities to clear the streets of unnecessary car traffic, making way for high quality **Active Travel Infrastructure** and high quality **Mass Transit**.

## Promotion

Throughout the period of major transformation in the bus product, as it grows exponentially in scale and in market share, marketing activity will grow disproportionately as the bus becomes ever more important so it will need to be well funded.

Marketing teams will also need to balance three objectives throughout.

We will be making a material contribution to **'saving the planet'** and we should reinforce that message continuously with solid evidence of progress.

We will also be enhancing the social and economic infrastructure of our towns and cities which will add to higher standards of health and happiness and underpinning economic growth.

Finally, we are delivering a consumer product where high quality, targeted marketing and branding can increase demand.

The industry and the community will need to invest heavily in building bigger networks, developing innovative pricing and payment, procuring ever better vehicles, enhancing infrastructure, and deploying technology and it will take high quality marketing to optimise demand to create a

positive, growing business generating the income to constantly reinvest in an ever improving bus product.

## Chapter Eight

### People

The defining characteristic of the bus industry is that it is people intensive.

It is much more about people than it is about buses.

As at today, all but a dozen or so of the registered local service buses operating across the UK require a driver leading to over 90,000 required to deliver the UK wide network.

Operating buses is an unavoidably labour-intensive business.

In total, over 3 billion individual journeys are made by customers each year so it is also a customer intensive business.

The **Net Zero** Future of Mobility challenge for the bus has a huge people component.

#### Drivers

If we successfully transition to an **Active Travel and Mass Transit First** environment in our towns and cities, the driver workforce, ignoring, for now, any autonomous component, will require up to 700,000 drivers in 25 years time. Spread evenly from now, that implies increasing the driver workforce, alone, cumulatively by an additional 25,000 per annum in an industry which has habitually operated almost hand to mouth for drivers with an annual staff turnover of around 15%.

That issue, alone, is a huge logistical, cultural and political challenge.

As with many other aspects of delivering a transformed urban travel environment in line with achieving **Net Zero**, procrastination in addressing this issue would not be the smartest move.

The driver role will also change character as fare collection and ticket validation move away from the driver to allow greater focus on the core



activity of driving a **zero emission** fleet swiftly and smoothly on streets free of congestion and traffic.

That change may, of itself, make the driver role less stressful and more attractive.

We do, however, need to identify where that much bigger labour force will come from.

Is there sufficient latent demand in the current UK workforce to meet what is required without creating a labour shortage in a parallel market or should we accept that a proportion of that growing workforce will inevitably need to be met through immigration?

Given the current 'culture war' over immigration in the political field, that matter needs to be debated and resolved upfront.

It is also important that the driver role is accorded the professional status it deserves and the workforce reflects the diversity of the population it serves with a significant growth in the proportion of young, female and ethnically diverse drivers.

The relevance of autonomous vehicles will become more apparent as time passes and the technology's practical application is better understood but there will still be an 'on street' labour requirement for additional supervisors and customer service personnel on the autonomous services even if that equates to less than one member of staff per bus.

Driver recruitment has long been the Achilles Heel of bus operation with endemic driver shortage plaguing the industry since the 1950's leading to a work culture of long hours and overtime simply to survive. That long hours and overtime culture was never ever healthy but will be even less acceptable in an **Active Travel and Mass Transit First** environment in the 2050's.

The only way an **Active Travel and Mass Transit First** approach will work is with an abundance of highly professional, well motivated and well rewarded drivers.

A long term sustainable solution to that issue is an imperative component of the bus renaissance of the next 25 years.

## **Supervisors and Customer Service Personnel**

Even if nothing else changes, the substantially bigger driver workforce will lead to at least a proportionate increase in the number of Supervisors required.

However, as is clear from *Chapters 2* and *7*, delivering the quality and standard of service required will lead to increased 'on street' supervision ensuring the highest possible quality of service delivery and customer service.

On Street Supervisors will also be supplemented by more Customer Service Personnel assisting customers, both on street and through physical retail outlets, in all towns and cities.

Again, the question needs to be asked as to whether that inflated workforce can be sourced internally from the UK or whether a proportion is met through immigration?

As with drivers, the Supervisors and Customer Service Personnel should have a diverse background matching that of the customer base.

## **Fleet Maintenance and Servicing Personnel**

There will be three issues impacting upon Fleet Maintenance and Servicing Personnel over the next three decades.

Firstly, the conversion of local bus fleets to **zero emission**, powered by batteries or hydrogen fuel cells.

This will radically simplify fleet maintenance and change the nature of the skills required by staff.

Secondly, the gradual introduction of autonomous technology. Whilst there are limits to the relevance of autonomous operation in local bus services, other than where fully restricted alignments can be provided, there remains the option to radically restructure internal depot processes

of recharging, cleaning and parking to be carried out autonomously reducing staff costs and expanding the capacity of depot sites through allowing buses to be parked more densely.

Overall, the workforce is likely to increase materially which, again, raises the issue of whether a big enough labour market exists in the UK or whether immigration will be required?

## **Management of Operational Businesses**

The design and delivery of bus services is highly sensitive to the demographics and physical geography of individual towns and cities. There is no 'one size fits all' template business model.

Consequently, bus businesses, by their very nature, need to be designed and managed locally in close collaboration with the local transport authority to deliver the best outcomes both for customers and the owners of the businesses.

The much denser networks of more intensive services will require expansion of commercial network planning, scheduling and marketing teams to optimise network design, pricing and promotion.

All the evidence points to management geographically remote from the operational front line leading to reduced customer satisfaction, poor relations with local transport authorities and less demand growth.

Local operating company managers will find themselves responsible for much bigger, higher revenue businesses which will demand new and enhanced management and networking skills over time.

As much autonomy as possible needs to be devolved to the local operating environment to ensure that the business stays fully integrated into the local community and economy as it will play a far, far greater role in the community than now.

## **Major Bus Owning Groups**

Where local bus operating businesses are part of a wider Group, the central overhead of those Groups should be as lean as possible, focusing

strictly on those areas where centralised Group activity can add true value for shareholders, local and national stakeholders and customers.

Over centralization of operational activity should be avoided as it will impinge on the quality of service perceived locally from operating companies and damage the credibility of the **Active Travel and Mass Transit First** operating model essential to deliver mass modal shift from the car.

## **Belief and Leadership**

One critical task for all bus industry leaders will be to steer a path toward the major modal shift required to deliver the UK Government's **Net Zero** obligations in conjunction with Government, both national and local.

That will require both belief and leadership.

A long-term bus renaissance based on mass modal shift over the next three decades will not happen by accident.

It will require co-ordinated planning, lobbying and action across the UK bus industry at both national and local level for the long term over and above the short term 'business as usual'.

Given the necessary battle to win hearts and minds to the cause of **Active Travel and Mass Transit First** in our towns and cities, and the scale of change necessary to sow the seeds of that change ensuring that a very different bus world stakes its claim to exist, is not some distant future activity.

It needs to begin now and requires the industry collectively and individually to equip itself with the management skills and resources to drive and deliver that change in conjunction with local authorities and national government.

It is clear from *Chapters 1 to 7* that the path to **Active Travel and Mass Transit First** mobility, delivering on the UK Government's **Net Zero** obligations, will need a long lead time, both to deliver hearts and

minds to support it and then work progressively through the complex logistics involved.

It will not happen overnight and, indeed, it will not happen at all if we do not identify the people to lead that crusade from within the bus industry now!

There is much to be done!

The path to delivering **Net Zero** through an **Active Travel and Mass Transit First** agenda will not only have major implications for both the people who currently work in the bus industry and their customers but see both groups of people grow exponentially over the next 25 years and beyond.

That growth will have major social and economic impacts which will need to be addressed upfront if they are to flow through smoothly.

## Chapter Nine

### Funding

This document is inspired by the UK's commitment to deliver **Net Zero** by **2050**. It is clearly understood that that milestone cannot be achieved without a significant reduction in traffic - even if that traffic is **zero emission**.

That requires a massive behavioural, cultural and infrastructure transformation which will not happen overnight.

We will not see a future UK Prime Minister at midnight on 31 December 2049 flicking a switch and everything fall neatly into place.

Delivering a transformation of that magnitude requires a lead time and, right now, that very political issue is sitting firmly in the *manana* pile with the current government pushing back the last date for the sale of petrol and diesel fleet by 5 years and a Prime Minister committing not to interfere with the freedom of motorists to enjoy their car.

That *manana* pile also includes a whole series of public expenditure cuts neatly lined up to take place after the next election and structured in a way that they will hit hard on specific government departments, including the Department for Transport.

However, we need to start somewhere and soon!

Delivering the transformational mobility change set out in *Chapter 1* is a long term, complex, multi dimensional project – or is it?

In reality, it will not be a single project or, even, a project at all.... but a **Movement**.

The developments we are already seeing across the globe in rescuing urban areas from the tyranny of the car and giving urban space back to the community as a whole, have been driven by charismatic leaders implementing their different vision of how cities should look and feel at the local level with local support.

Some of that support was there before change was delivered and even more support has emerged as the sceptical become the converted and understand just how much better urban spaces are without the congestion, the pollution, the neediness of cars.

There will not be an Act of Parliament declaring the end of the car culture and mandating the whole country to deliver **Active Travel and Mass Transit First** mobility policies.

Two things will happen.

Firstly, visionary local leaders will see the light and drive change in individual towns and cities, not specifically to deliver the **Net Zero** commitment but simply because it will make them better places to live.

Secondly, government **will** ultimately need to face up to the reality of their **Net Zero** obligations and implement UK wide policies to cut car traffic – petrol, diesel, gas, hydrogen or electric – and **Active Travel and Mass Transit First** policies will, inevitably, be part of the solution.

So no-one at any time is going to sit down and build a masterplan for the transformation complete with budget and a project plan.

The **Movement** already exists, is slowly growing and will, most likely, pick up pace as it advances.

The Welsh Government has committed not to invest in any more major road building projects.

The Scottish Government has a clear target to reduce car use by 20% by 2030 albeit without a credible policy yet to make that happen.

As things currently stand, they will, quite simply, spectacularly fail to deliver.

The UK Government has the overall responsibility for delivering **Net Zero** and can't 'hide behind the sofa' on that issue much longer every time the **Net Zero** Contribution Collector knocks on the door.

Cities like Edinburgh, Oxford, Bath and the whole of Wales are taking definitive steps to embark on the journey. London is, too, but not quite as quickly and dramatically as comparable major cities like Paris, Brussels and Barcelona but it has bought a ticket for the trip.

The principal star of the **Net Zero** Show is government, both local and national, and they need to lead the way.

The bus industry has the opportunity to audition for a major supporting part if it is brave enough to do so, queues up early for that audition and brings a plan and evidence of its ability to deliver.

The smart move for the industry is to begin now to engage with the more progressive local authorities and politicians and other allies in their areas to discuss pilot bus projects along the lines of the ideas in **Chapters 1 to 7** and how they could be introduced early into the transformation in the areas involved to build momentum for the future.

So, in that context, let's discuss **Funding**.

The overall transformation of our towns and cities and the future control of traffic in those towns and cities, and the major roads and motorways between them, has to be formally led by the public sector at the local level.

Local authorities have the power to restructure and replan urban areas which is at the heart of the transformation so funding for those initial steps will have to come from that direction.

The initial spark will be a political decision by bold, brave politicians (*yes, they do exist! Google Anna Hidalgo, Ken Livingstone, Ravi Bhalla*) triggered by one of many reasons to reconfigure the public realm to prioritise **Active Travel and Mass Transit First** over the unbridled use of the private car.

The first steps can be relatively low cost by simply closing key streets to through traffic prioritising pedestrians, cyclists and buses. As that relatively low cost initiative begins to win favour, planning can begin for bigger public sector investment in better infrastructure and more people, bike and **mass transit** friendly road layouts.



Those initial public sector investments will have their own community payback in creating cleaner, liveable environments in the heart of urban areas with reduced congestion, better air quality, a healthier population with less stress on health and social services.

However, those measures can only go so far.

As the hearts of urban areas are restructured and car use discouraged, there needs to be development of environmentally friendly **mass transit** operations and, in most places, they will be best delivered by bus.

And that is the opportunity for the bus industry to be bold and to shine.

Those newly environmentally friendly areas can be the breeding ground for a new generation of bus services reflecting the elements outlined in *Chapters 2 and 3*.

The bus industry can be timid and lazy and expect the public sector to take the lead in encouraging those developments or be bold, brave and seize the initiative and work proactively with the local authority to build bigger, stronger, more attractive bus networks through private sector investment and leveraging supportive developments by the local authority in improved **bus stops, mobility hubs** and **bus stations**.

Those new style bus networks have strong potential to be fully financially self sustaining if they are well planned, designed and delivered riding the wave of the much improved traffic environment.

There needs to be a 'new deal' hammered out by the operators and government on funding.

Ideally, that deal should be focused on giving operational and market freedom to bus operators to deliver financially and environmentally sustainable growing networks ensuring the community can travel conveniently by bus without excessive use of private cars.

One of the keys to self-sustainability is to address the damage caused to the bus industry by Government giving its product away free to a large swathe of the market in return for insufficient financial compensation.

The free travel schemes which grew up in Wales, Scotland and England in the mid 2000's were always going to be unaffordable in the long run as their cost would escalate with inflation whilst the income stays flat at zero.

That has begun to create its own problems with, for example, the Scottish Government providing free travel to everyone over 59, under 22 or carrying any form of disability and then discovering it hasn't enough money left to invest in bus priority measures to ensure that a sustainable network exists for those free pass holders to travel on whilst operators are struggling to afford to deliver services due to insufficient reimbursement.

It is wholly dysfunctional.

We should take the reclaiming of urban areas for the community and the development of new style bus networks as a point where we reset those arrangements to ensure the ongoing sustainability of those new networks at realistic fares which customers can afford.

That is not to say that government should not invest a proportionate amount of money in making bus travel more affordable for the young, the elderly and the disabled – but just not free!

For example, offering Young People an annual bus pass for, say, £50 per year would still be a good deal and meet the social and economic objectives of a free scheme but with the benefit that, if bus fares need to rise by 5% to meet rising costs, the pass would simply increase to £52.50p as opposed to a local authority or government being faced with fully funding a 5% increase in the cost of delivering a free scheme ultimately rendering it unaffordable.

Healthy discounts could even be offered commercially by operators on the new, expanded sustainable networks operating on cleared streets at sensible speeds.

There is a view that providing free travel to significant groups of people was always going to be a one way political street. The administration which provided it would certainly have an easier ride to re-election whilst any administration which subsequently took it away would be committing political suicide.

That is why there needs to be a 'new deal' around the new world of **Active Travel and Mass Transit First** urban areas.

Free travel could be replaced by sensible levels of fare discount but with current holders of free travel passes continuing to receive free travel.

However, no new passes would be issued.

This would see the dysfunctional issues surrounding free travel gradually fade away over time.

Yes, it might be controversial but the current situation is clearly unsustainable and part of the cocktail of issues which has seen bus operators increasingly struggle to maintain sustainable networks since 2010.

That cannot go on and the watershed of delivering **Active Travel and Mass Transit First** urban areas provides the opportunity for a reset ensuring that holders of discount cards will have a bigger, sustainable network to ride on whereas, currently, holders of free passes are seeing their services disappear before their eyes.

Removing the two huge negatives of the impact of congestion and free travel from the bus market opens up the possibility of long term sustainable commercial operations compatible with the public sector urban policies of **Active Travel and Mass Transit First**.

Over time individual towns and cities and their political leadership will decide that 'enough is enough' and begin to reshape their communities in a more human form around **Active Travel and Mass Transit** so we won't ever see a massive Project Plan or Budget for a nationwide conversion but, instead, we are more likely to see a **Movement** in favour of the change rippling across the country in an opportunistic way.

Yes, components of the full scale policy may very well pop up in isolation without the full package. For example, the kind of UK wide pricing and ticketing proposals which would allow any of us to board any bus in the UK at any time and just tap our contactless card on the reader and sit down can be implemented in isolation and bring significant benefit without the rest of the package.

Delivered in full, it is, indeed, a long term, complex, multi dimensional project but it won't ever be planned, costed or funded as one.

It will be a **Movement** and the detail will vary by location but, at its core, will be the opportunity for the bus to shine as the beating heart of the **Future of Mobility** surrounded by **Active Travel** and **Mass Transit** modes.

So, as far as funding goes, no one will ever need to justify a multi billion pound project like HS2 and that can only be a good thing.

Small, in this case, is beautiful and manageable and deliverable.

Public sector investment, beyond revised traffic management and road layouts, will also involve **Mobility Hubs, Park and Ride** sites and, when scale requires it, modern, stylish **bus stations** in the heart of the town or city.

That initial policy decision and public sector pump priming investment then needs to be followed by bus operators riding the wave and investing in improved bus services in terms of frequency, quality and geographic reach in line with the kind of networks and product described in **Chapters 2 and 3**.

It will all take time.

The car did not suddenly take over our urban streets in 1950.

It gradually grew in volume until, by the early 1970's, it began to feel menacing as congestion grew as did the demand for wider, and then more, roads.

This transformation will be the same – moving forward slowly, but relentlessly, in one direction as **Active Travel and Mass Transit** begins to reclaim our towns and cities for community and people not for cars and car parks.

It may begin small and move slowly but, clearly, there will be growing funding and investment needs which will need to be shared between the public and private sectors depending on where the payback for those investments lie.

The key question to ask is –

*'If **Net Zero** requires a material reduction in car use and **Net Zero** simply has to be delivered, what better plan is there on the table?'*

### **Where will the funding go?**

There are two distinct areas where substantial upfront investment will be required to develop an **Active Travel and Mass Transit First** environment in any geography.

Firstly, the need for public sector investment in repurposing streets and associated infrastructure for pedestrians, cyclists and buses as opposed to cars. This will take a degree of ongoing expenditure but will replace major new road construction schemes and have to deal with less routine wear and tear on streets.

Within towns and cities, more **bus stations** may be required of a higher quality with better amenities as set out in **Chapter 3**. In some cases, they can be built on repurposed car park sites.

Bus stop infrastructure including good quality shelters with seating, lighting, wifi and real time information will also be required.

Careful use of congestion charging or road pricing will also aid keeping the streetscape clear of unnecessary cars whilst also contributing to funding.

Government needs to be proactive and alert in how it manages the gradual loss of Fuel Duty Income on petrol and diesel cars and, perhaps,

replace it with an intelligent **road pricing** regime applying to their **zero emission** successors.

Secondly, operators will need to invest in more, and better quality buses, additional depot infrastructure, additional driving, supervisory, maintenance and customer service staff as well as covering the cost of designing, marketing and delivering bigger networks. All fleet investment will be in **zero emission** vehicles which, whilst incurring higher upfront capital costs, should begin to be cheaper over their whole life.

Operator investment will also be required in depot infrastructure to cope with bigger fleets but, again, this should be self-sustaining over the life of the assets from the greater volume of sustainable bus operation.

There will be challenges in terms of working capital to underpin the cash investment in new fleet and depots and the development mileage on new services before they reach maturity.

There are, however, different models of procurement for both fleet and depots which might ease the cash flow issue and, perhaps, a case for sharing the development mileage costs with the local authorities in a *'kick start'* model whereby tapered grant funding could be used to cover the early stages of operation.

### **What will the benefits be?**

The switch to **Active Travel and Mass Transit First** will improve air quality and take pressure off of both health and social care resources, reduce deaths and injuries from collisions, create more employment and revive city and town centres.

The increased employment both directly in the bus industry and in stronger town and city centres will increase tax revenues and contribute to economic growth.

Rural connectivity should also improve.

These are all returns on the public sector investment.

From an operator perspective, bus speeds should improve materially both reducing costs and increasing demand and revenue whilst network growth on free running streets should provide a positive financial return.

From a negative aspect, the reduced demand for cars may impact on car manufacturers, retailers and service centres.

### **Who gets the payback?**

There should be a community payback with cleaner, healthier, liveable cities with fewer car collisions, injuries and deaths. Town and city centre retail, leisure and night economies should all benefit from increased activity.

The business case for operators should be positive if infrastructure and the expanded networks are well designed, marketed and operated. However, there will, inevitably, be a lead time for demand to build on new or more frequent routes which will have a short to medium term working capital requirement before a full contribution begins to flow.

This analysis assumes that the bulk of bus operation in the new environment will be delivered and principally funded by the private sector commercially. Other options are clearly possible and are discussed in [Chapter 10](#) on *Governance*.

## **Chapter Ten**

### **Governance**

The issue of Governance is addressed tenth as *Chapters 1 to 9* focus directly on the substance of what is required to develop future bus networks in the context of an **Active Travel and Mass Transit First** mobility environment contributing to the UK's delivery of **Net Zero** in 25 years time.

It is only when you are clear about what needs to be delivered that you can then be clear on the most appropriate methodology and governance structure to make it happen.

This is about the long-term transformation of urban and interurban mobility underpinning the UK's delivery of **Net Zero** by 2050.

#### **Current UK Bus Governance Models**

##### **Bus Franchising in Mayoral Combined Authorities**

The most recent changes to Governance around bus networks in the UK are contained in the 2017 Bus Services Act providing Bus Franchising Powers to Mayoral Authorities. Mayors do not have an automatic right to franchise as it is subject to the production of a formal, independently audited, Assessment of the viability and sustainability of their proposal over a 30-to-40-year horizon which coincides with the **Net Zero** transition.

To date, three Authorities, Greater Manchester, Liverpool City Region and West Yorkshire, have confirmed a move to a Franchise Model with Assessments focused predominantly on delivering the 'status quo' better with greater integration around ticketing and slowing the pace of managed decline in bus demand.

There is little in the way of radical product ambition, transformational modal shift, cleaner, healthier, liveable cities or simplifying the use of the bus nationwide through acceptance of contactless cards automatically opening up capped payment arrangements in any urban area.



Their plans are focused predominantly on governance rather than the substance of the bus product and the delivery of transformational modal shift. Most importantly, they are broadly silent on car constraint and the successful delivery of the local transport contribution to **Net Zero** in 25 years time.

Bizarrely, the West Yorkshire Assessment absolutely fails to take account of a pending £2.5bn Mass Transit System which will have major implications for the bus network and, effectively, nullify the value of the Franchising Assessment!

South Yorkshire is about to appoint an independent Auditor to review its own Assessment again based on fixing the shortcomings of the current governance structure but with no dramatic product ambition.

None of those proposals encompass anywhere near the degree of car restraint, pedestrianisation, **Active Travel**, bus product development and enhanced town and city environment required to deliver **Net Zero**.

The focus on separate 'island franchises' around individual Combined Authorities doesn't contribute to the concept of a UK wide culture change in **Active Travel** and bus use for urban and inter urban travel.

We need a truly joined up approach to bus ticketing and integration across the country and the development of long distance commuter and interurban operations to reduce the need for car commuting into town and city centres.

None of those assessments are anywhere near as radical as these proposals and it is questionable, in any case, whether the Franchised Governance Model deployed could be fit for this purpose.

All the effort is going into changing the governance model, not growing, deepening and widening the market with ongoing product development.

Very little is fundamentally changing. It is effectively the same old stuff delivered under a different contractual arrangement which will, of itself, render future radical change even more difficult to deliver as it will involve unravelling or renegotiating complex contractual arrangements.

Local authorities are not geared up to be dynamic consumer businesses so complacency will settle in. At the end of the day, a franchise is simply a monopoly supplier and monopoly suppliers are an enemy of change and innovation.

Evidence of that is clear from the success of 'open access' rail operations where private sector rail operators identify and develop growth markets missed by the Public Sector franchise managers.

On the face of it, the franchising model is in danger of parking the bus industry in a siding instead of picking up speed on an express line to cleaner, liveable cities and **Net Zero**.

We are tidying things up, moving the deck chairs around, integrating some ticketing but not delivering a new, compelling proposition which will take people out of their cars and embrace a new world of mobility.

If we want to call time on the tyranny of the car in our towns and cities, it is doubtful that a rigid franchising model will cut it. There is certainly nothing in the four proposals produced to date to get excited about in terms of climate change and **Net Zero**.

In taking control of their bus networks, local authorities are deploying a late 20<sup>th</sup> century business model unfit for the purposes of the mid-21<sup>st</sup> century challenge of **Net Zero**.

This problem is not unique to the UK.

Most urban bus operations in Australia, for example, are delivered on a similar franchised basis as is being introduced in Greater Manchester, Liverpool City Region and West Yorkshire.

It is relevant to note that, in Melbourne, Australia, the Government's Infrastructure Commission has just produced a highly critical Report challenging the conservative nature of the Melbourne bus network planned by the public sector Victorian Transport Ministry as being unfit for the future economic and environmental development of the City. It strongly recommends substantial restructuring and expansion of the

network and development of new style services to meet the economic growth targets of the city and the delivery of **Net Zero**.

Franchising is big on governance, administration, tendering and contractual complexity but light on product ambition, environmental improvement, climate change mitigation, innovation and quality of life.

The discussion on bus governance should not be about a backward look at what has happened in the last 40 years but a forward ambition about what can be made to happen in the next 40!

## **Enhanced Partnerships**

The alternative Governance Model provided for in the 2017 Bus Services Act is an Enhanced Partnership one.

Good positive voluntary partnerships can be a powerful way to bring miscellaneous parties together to deliver exciting things and that could be compatible with the proposals set out in *Chapters 1 to 9*.

However, the 'Enhanced' Partnerships in the Bus Services Act come with strings attached.

As part of the National Bus Strategy, the DfT has made engaging in an Enhanced Partnership or Franchising a condition of receiving DfT Grant Funding. Consequently, many of those Partnerships are, effectively, '*shotgun marriages*' made to access public money rather than based on a positive desire to work closely together.

Additionally, the Competition and Markets Authority Guidance on Enhanced Partnerships stunts their growth and potential with restrictions on their length and depth – a bizarre approach to take in parallel with granting a public sector bus operation monopoly pricing power in perpetuity!

Operators proposing a significant network enhancement may find the agreements underpinning its success restricted to only 3 years whereas the lead time to get a payback on the investment in the additional mileage involved in a frequency increase can take up to 6 years as evidenced in the 'Kick Start' Scheme rules used by the DfT in the 2000's,

and up to 8 years to get a sensible return on investment in additional fleet.

Ambitious long term partnerships need time to develop and room to breathe but can deliver bold, radical change.

Allowing Operators and Authorities room and time to be creative and ambitious are essential to producing better outcomes than rigid contracts defined by local authorities.

Buses are an important part of local social and economic infrastructure and, therefore, local authorities **must** have legitimate input into network design but they are also a consumer product where the marketing and commercial skills of operators are equally important in developing and sustaining the network.

An alternative governance model in a world of *Active Travel and Mass Transit First* should involve a genuine partnership between all the parties with a vested interest in local mobility working together with each party focused on the skills, experience and investment they can bring to optimise the overall outcome.

Ideally, each Partnership should be tailored to the nature of the market in the area involved and either independently chaired or, possibly, co-ordinated by the Mayor.

Despite assertions to the contrary in Franchise Assessments, local authority borrowing is not the simplest, cheapest, safest way to fund significant fleet investment. In many cases, operators can deal with it more efficiently, with less risk, utilizing shareholder investment and reinvested profit with less reliance on borrowing.

We have seen several examples recently of local authorities running into financial trouble by overextending themselves with loans related to commercial speculation. At the end of the day, bus operation is a commercial risk activity and does not always guarantee a positive return especially if organic growth and serious modal shift from the car are key objectives. Experienced private sector operators may be much better placed to manage those issues.

In any case, even the briefest look at the current and future prognosis for UK public sector finances screams out that urban bus networks will be well down the pecking order for scarce public sector investment compared to health, education, defence and other greater priority government departments.

That pattern was set in the age of austerity in 2010 and shows no real sign of changing any time soon.

The best future for the bus is to recognise its consumer product potential in a socially responsible way to deliver environmentally and financially sustainable operations in public/private sector partnership.

### **What would a true Urban Mobility Partnership look like?**

Buses do not exist in a vacuum and a narrow, binary Partnership between a Transport Authority and Bus Operators can only go so far.

In its engagement with the Competition Authorities, the bus industry has always had to remind the Competition and Markets Authority and its predecessors that its greatest competitor is the car - both for market share and simply for room to breathe on the streets and do its job.

*Chapter 2* emphasized the importance of the bus industry working with allies if it is to play a material role in reversing the negative effect excessive car use has had on our towns and cities.

A true **Urban Mobility Partnership** should recognise that partnership working needs to encompass, not just the Operators and the Transport Authority, but those allies who share views and values with both the Authority and Operators.

It needs to be a broad church with broad powers and its own funds.

It would draw its legal powers and its funding from both the public **and** private sectors and deploy them in the interests of the community.

It would provide freedom and mobility in the context of a clean, pleasant, liveable urban area with an ability for everyone to move

around as they require in an environmentally and financially sustainable way.

It's Governance would be overseen by a Members Forum representing the Public Sector in the form of the Mayor (in Mayoral Combined Authority areas), the Local Authority, the Highway Authority, the NHS, the Education Authority, major Community Groups and any other major local public sector bodies.

The Private Sector would be represented by Mobility Operators including buses, trams, trains, taxis and ride sharing businesses together with Trade Unions, Chambers of Commerce and other significant local private sector entities.

Its Mobility operations will be overseen and co-ordinated by its own Executive Management Team with Administrative and Operational staff.

Policy and Decisions will be informed by Working Parties covering Finance, Capital Projects, Infrastructure, Network Development, Pricing, Ticketing and Payment, Environmental Sustainability, Economic Regulation, Marketing and Innovation.

The **Urban Mobility Partnership** would have access to its own funds drawn from

- A levy on commercial mobility operator gross revenues
- A levy on all remaining urban car parking charges
- A workplace parking levy
- Congestion Charging
- Revenue funding from the local authority
- Government Grant Funding
- Such other funding sources as it is able to develop

Those funds would be channelled into bus network and associated infrastructure development.

Other potential detailed governance models for true public / private sector partnerships may be possible.

However, if we are to be truly ambitious about transforming the environment of our major towns and cities, we need something more of

our time than a 1980's style bus franchising model or the flimsy enhanced partnerships envisaged by the DfT and CMA in the National Bus Strategy.

## Chapter Eleven

### *What could possibly go wrong?*

*Chapters 1 to 10* have set out a bold, ambitious, high-level plan to inspire the development of a new golden age of the bus contributing to the UK Government's commitment to **Net Zero** by **2050**.

There is a view that, whilst recent operational and trading conditions have been challenging, the long-term prognosis for the industry is positive in light of its major potential to contribute to combatting **Climate Change** and improving the urban environment.

However, we cannot simply sit waiting for the apple to inevitably fall from the tree.

It is not a given that buses will thrive in the medium to long term. Yes, the industry has '*potential*' but that potential needs to be nurtured, developed and directed in the right way if it is to be realised.

We need to work at it.

This document is a direct result of thinking through how the industry needs to develop over the next 25 years to realise its true potential.

Understand and grasp the positives which we can control.

It will not all be plain sailing - there will be challenges to overcome, storms to endure and battles to fight to earn that golden future.

In this *Chapter*, we identify 10 broad threats to that future which we need to address, confront and manage if the bus is to thrive.

### **Climate Deniers and Conspiracy Theorists**

Let's just get this one out of the way first!

There are those who believe that **Climate Change** simply does **not** exist – it's just weather being unpredictable, and we should simply go with the flow and it will all be fine.



There are also plenty of **Conspiracy Theorists** who will see something sinister in any programme for change.

We need to devote enough attention to keeping both in check and in proportion and vaporize the spurious theories they profess but, broadly, democracy works, and, in that context, they will finish up as simply a noisy minority.

The majority, who fully accept that **Climate Change** is all too real, should never be complacent and always be ready to challenge the **Climate Deniers** with factual evidence.

## **Our Global Addiction to the Car**

This risk is much more serious and **tops the genuine risk list** for a reason.

In the UK context, Harold *'you've never had it so good'* MacMillan, UK Prime Minister of the 1950's broadly fired the starting gun on mass addiction to the car in the UK when he proudly said that the man in the street could now afford his own motor car.

About ten years later Colin *'it will all end in tears'* Buchanan published the seminal Report on car addiction and its ultimate consequences entitled **'Traffic in Towns'** forecasting the **Carmageddon** the world was slowly sleepwalking into.

We can't say we weren't warned as cars have gradually taken over all of our towns and cities and the roads in between totally dominating the urban environment either stopped stationary in traffic jams or stopped stationary and parked .... everywhere!

A majority of the population honestly believe that civilised life requires immediate access to a car and the 'freedom' of mobility it allegedly provides. Harold MacMillan would no doubt be proud of the current UK Prime Minister, Rishi Sunak's defence of the right of the motorist in his **'Plan for Drivers'** to motor wherever and whenever they choose.

The political reaction to Sadiq Khan, the Mayor of London, extending the city's **Clean Air Zone** to the outer suburbs should ring alarm bells across the country. It is a stark reminder that the car lobby is alive, alert and resistant to 'cold turkey'.

Certain politicians will run scared of it.

Addiction to the car is deep seated with many of us, even before we could walk, driving a toy car on the lounge carpet and graduating to a real one on street as soon after our 17<sup>th</sup> birthday as possible.

Times and the mood of the population **are** quite definitely changing and younger generations, particularly, will push for change but the biggest hurdle to overcome is the addiction which prevents people stepping back and absorbing the madness that is 'traffic' and its association with 'congestion' and 'pollution' and 'poor health' and 'death'.

Without a sea change in the attitude to 'traffic', an **Active Travel and Mass Transit First** environment will not thrive.

This threat, above all, needs work!

## **Labour Supply**

An **Active Travel and Mass Transit First** future will dramatically increase the number of front-line staff required in the bus industry to drive, to supervise, and support customers - even with a proportion of autonomous vehicles.

It is imperative that bus operators function with an abundance of drivers to deliver high standards of reliability.

It is unlikely that the numbers required will be available in the UK workforce even with recruitment from a much more diverse pool of staff.

As a developed economy, it is highly likely that there will be a major need for international recruitment and, therefore, a reasonable pathway to visas for internationally recruited staff is essential.

Recent research published in *The Lancet* confirms that plummeting birth rates in all major western nations will make them reliant on immigration for the remainder of this century. To maintain public services and economic growth, high income societies like the UK will have no choice but to rely on an influx of immigration from poorer countries in Africa with higher birthrates.

Currently, the door is closed to international bus drivers working in the UK but, unless that situation changes in the next few years, the necessary growth in fleet and service levels to deliver the volume of modal shift required will be **impossible to deliver** due to staff shortage.

This, therefore, becomes the **second greatest threat** to the bus realising its full potential on the road to **Net Zero**.

## **Ambition, Imagination and Courage**

Around 75% of current bus services across the UK are delivered by 5 major operating groups – *Stagecoach, First, Arriva, Go Ahead and Mobico*.

Three of them are now private equity owned and it is distinctly possible that the other two may end up moving in the same direction.

Are they all ambitious enough to engage with a commercial expansion strategy of this scale and nature or would they shy away from it and prefer to settle into cosy public sector contracting, **leaving the commercial risk to the public sector?**

Heaven help us if they do!

Executed well, the new golden age of the bus would be a solid wave to ride over the next 25 years if the ambition, imagination and courage are there amongst the operating industry and its many suppliers and stakeholders.

It requires vision, imagination, ambition, competence and substantial investment over a sustained period of time.

Starting now with a deadline of **2050** to reach **Net Zero** makes it very manageable if there is clear alignment on the direction of travel.

The prospect of solid, ongoing organic growth should serve as a strong incentive.

## Franchising in English Mayoral Authorities

We have at least 4 of the Mayoral Combined Authorities in the North of England bogged down for the next 3 – 4 years simply delivering a governance change to a franchising model where they will own **all** of the buses and depots, absorb **all** of the commercial revenue risk **and** be responsible for the product design, retailing and marketing.

Busy with governance - not substance!

The asset ownership issues saddle them with substantial debt which does **not** apply in the London Model where most of the bus and depot assets are on the Balance Sheets of the operators.

They have already produced Business Cases for their bus networks over the next 40 years which, apart from delivering a **zero-emission** fleet, are pretty much silent on **Net Zero**, major modal shift and the transformation of the urban environment.

All governance over substance!

Given the nature of the Strategic Cases in their Franchising Assessments, the concept of an **Active Travel and Mass Transit First** urban mobility would not be out of place.

The **threat turns on** whether they are capable of funding, delivering and managing the kind of transformational growth in the size and nature of their bus operations, embracing the consumer marketing challenge, and simultaneously restructuring their urban infrastructure and highways in favour of the community instead of the car?

In their lemming like rush to take control of their bus networks and wrap them in a 1980's operating model, they seem to have failed to think

through the long term potential trajectory of an industry they assumed was brain dead and on its last legs.

*Chapters 1 to 10* make it very clear that there is a very positive and bright outlook for the bus in the context of delivering **Net Zero** and the Franchised Networks are in danger of having 'misread the dress code'.

Franchising was all the rage with **Ken Livingstone** in the 1980's but they should now have a chat with **Anna Hidalgo** in Paris and **Ravi Balla** in New Jersey about 2030 and beyond to **2050**.

Following an **Active Travel and Mass Transit First** urban environment with their asset heavy approach to franchising would be a huge and risky challenge.

This may lead them to resist the approach unless they change the risk profile of their bus operations by reverting to operator owned assets and the possibility of commercial concessions where operators take revenue risk replacing franchised contracts.

This poses a huge dilemma needing much thought and discussion to unravel if the bus is to play its full part in the delivery of **Net Zero**.

## Scotland

Scotland has a completely different problem to overcome.

Urban franchising only arises as an issue in Glasgow or, to be precise, the whole Strathclyde Region. If Strathclyde moves in that direction all the same risks outlined above will also crystallise there unless their Business Case for Franchising takes on a different character to the asset heavy '*not very London like*' version currently preferred by Manchester, Liverpool, West Yorkshire and South Yorkshire.

However, Scottish bus policy is in a **muddle!**

The good news is that it is focused on **modal shift**, with a target, but no visible means of how that target will be delivered.

Currently, Scotland has no funding available for bus priority or investment in improving the bus operating environment. All the money is being spent on rail, ferries or providing free countrywide bus travel on both local and long distance bus and express coach services for everyone under 22 and over 60 plus those with a disability.

Since the over 60's scheme was first introduced in the mid 2000's there has been a constant squeeze on its funding to the point where it is now pushing up fares for those aged between 23 and 59 – the very group who need to deliver **modal shift** from car to bus.

In addition to that pressure on core adult fares, the burden of financing the concessionary scheme for the over 60's is also putting negative pressure on the network.

Scotland is now in the position where those holding free concessionary passes are seeing the services on which they can actually be used, decline!

The only hope of reversing that decline lies in solid investment in bus priority and the operating environment but, despite promising to spend an encouraging £500m in that area in 2020, only £26.9m has actually been spent so far and now the Government has 'paused' any future spending as it simply can't afford it!

Ironically, Edinburgh is seriously concerned about the tyranny of the car and taking genuine steps to prioritise **Active Travel and Mass Transit** and no visible intention of franchising its bus network.

Strathclyde also openly acknowledge that they will need serious levels of government money if they proceed to franchise.

Hence the **muddle!**

A solution to the free travel conundrum is outlined in *Chapter 9 on Funding* but, given the sheer scale of the Scottish free travel schemes, it will take some time before the burden eases sufficiently to free up money for investment in both the bus and highway environments to underpin an **Active Travel and Mass Transit First** approach to the **Net Zero** challenge.

As with the issue of Franchising in England, the whole Scottish bus strategy needs thought and discussion if the bus is to play its full part in the delivery of **Net Zero**.

## Wales

Apart from the proposal to franchise the bus network, Wales is much more aligned with the broader environmental aspects of the proposals contained in *Chapters 1 to 10* with its ban on new road development and default 20mph speed limits in urban areas.

It is clearly taking the role of transport in delivering **Net Zero** seriously.

From the current starting position, it is possible to see how Wales could align with the kind of actions set out in *Chapters 1 to 10*.

On balance it is **more friend than foe** to the **Active Travel and Mass Transit First** approach to **Net Zero**.

## Local Authority willingness and ability to deliver and fund the changes to the environment

It is not simply the bus industry which needs to be ambitious, imaginative and courageous in preparing a pathway to **Net Zero**. The proposals set out in *Chapters 1 to 10* require substantial policy and investment decisions in every urban area to create a physical environment compatible with an **Active Travel and Mass Transit First** urban mobility model.

With the tight control exercised by central government in the UK on local authority spending, it is a challenge which also needs to be embraced by the UK government.

The threat emanating from local government policy is **very much tied together with the success in addressing the addiction to cars** discussed above.

It is one and the same challenge. Win the hearts and minds of the community and the local authorities and politicians will follow.

## Securing close alignment amongst allies

The vision of **Active Travel and Mass Transit First** urban mobility requires a foundation of alliances, co-operation and partnership to succeed.

It is imperative for buses, trains, trams, taxis, bikes and scooters to accept that they are all on the same side and need to present a joined-up alternative to the car if the whole strategy is to succeed.

Yes, each mode needs to be innovative, dynamic, commercial and competitive to attract consumers from their car to **Active Travel and Mass Transit** but carefully balanced by the need to integrate and present an overall product superior to 'traffic' and the car.

It would be all **too easy to fail to see the big picture and, as a result, lose the prize.**

Time to know who your friends are and learn to play nice.

Similarly, the existential challenge of **Net Zero** needs to be underpinned by a strong political consensus with national and local government and their leaders in what is, of necessity, a long-term direction of travel over the next 25 years.

## Bus Design

The **current bus fleet** in the UK, including some of the shiny new **zero emission** models being delivered today, **is not all fit for this purpose.**

Conventional single door double decks on core urban services need to be replaced by vehicles which lend themselves to higher operating speeds and shorter dwell time at stops, for example.

This is probably sacred cow slaying time in the UK context but needs must for the reasons spelled out in **Chapter 2.**



Similarly, catering for inter city travel and suburban commuting will require the design of some more stylish, comfortable vehicles fit for that purpose.

The bus and coach product on the street needs to raise its game if this agenda is to succeed.

This needs ambition, imagination and courage on the part of Operators, Highway Authorities and Bus Manufacturers working together.

## Conclusions

So, what could possibly go wrong?

The battle for a sea change in the attitude to cars in towns, cities and interurban roads simply has to be won.

We need to face up to the need to embrace significant levels of immigration to provide the scale of workforce required.

Notwithstanding the current debates about franchising and partnerships, we need a reset of bus policy in England and Scotland, and some tweaks in Wales, to support the progressively greater role of the bus from 2030 and beyond and the levels of investment and commercial risk that will entail.

We need a level of shared vision, ambition and consensus between politicians, authorities, operators and the wider industry which needs constructive thought and debate.

The bus can clearly play a bigger role in the future than it ever has in the past but that is **not** a given.

We all have work to do.

## *Epilogue*

The Eleven Core Chapters of this proposal were the easy bit!.

The hard stuff starts now and is the responsibility of a wide range of community and industry stakeholders.

Principal amongst those stakeholders are politicians of all parties and persuasions.

If you were to call at the front door of any politician today to ask them, politely, how they are planning to deliver the UK's solemn commitment at global gatherings to deliver **Net Zero** in **2050** and, in particular, the transport component, they are most likely to do one of two things.

Hide behind the sofa or make a break for the back door!

If you're quick and nip round the back and catch them just before they leap the fence, you'll hear breathless mutterings about '*electric cars*' and '*too early to worry about that*'.

The curt response I would give to both panic answers is –

***'It isn't!'***

Delivery of the transport component of **Net Zero** requires a lot more than simply swapping petrol and diesel for electricity or hydrogen. It requires a material reduction in car use and traffic, a lot less new road building and a lot of effort to remodel our towns and cities for people not traffic.

Those steps involve major culture change and substantial planning and, if we start tomorrow, we might just about hit the deadline.

Politicians spending their time nit picking the detail of **Net Zero** to find commitments they can water down right now is simply madness.

Time to face up to the reality and move from self important declarations on the international stage to firm plans and action.

The package of proposals laid out in the previous eleven chapters are probably the only game in town at the moment in the form of a practical, structured approach and they will certainly take up to 25 years to deliver.

If we accept that the transport component of **Net Zero** requires a material reduction in car use, we need a plan now, as that culture built up over seven decades won't just melt away of its own accord.

So, I shall leave this package on the table for further thought, discussion, consideration, debate or even polite abuse!

I'm happy to participate in any debate, discussion, research to help find a better answer - if this is the wrong one.

We certainly can't road build our way out of the problem.

If anyone sees rail investment being the solution, comprehensive enough and deliverable on time, we all know how rapidly and affordably **HS2** and **Northern Powerhouse Rail** have 'progressed' in the last decade ....

I'll end with an environmentally friendly transport related cliché –

***'You can take a horse to water .....***

## ***About the Author***



*Robert Montgomery* has held senior executive positions in both public and private sector bus and coach operating businesses for over 40 years running both big city urban bus operations and inter city and commuter express coach operations in the UK, Ireland, Central Asia, North America, Western Europe and the Middle East.

Throughout that time, he has been focused on delivering patronage growth and modal shift from car to bus and coach at every stage of his career and has also been heavily involved in governance arrangements around, particularly, urban bus networks since the early 1980's.

He has always been strongly of the view that buses do not operate in isolation and will only succeed through alliances and partnerships with both public and private organisations in the communities they serve.

He also believes that the bus has a bigger future than a past and now is the time for the industry to be bold and to shine.

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